THE OIL WEEKLY

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The Oil Man's Calendar

MAY 6–7	American Petroleum Institute, Division of Production, Eastern District, Columbus, Ohio.
10–16	American Gas Association, Natural Gas Department, Kansas City, Missouri.
19–21	Natural Gasoline Association of America, Tulsa, Oklahoma.
23–27	National Association of Purchasing Agents (Oil Company Buyers Group), Pittsburgh, Pa.
JUNE 1–3	American Petroleum Institute, Mid-Year Meeting, Colorado Springs, Colorado.
5	San Joaquin Oil Men's Barbecue for California Oil Men, Bakersfield.
10–12	Pennsylvania Grade Crude Oil Association, Sailing from Buffalo, New York.
11	Interstate Oil Compact Commission, Santa Fe, New Mexico.
14–19	Second World Congress of Petroleum, Paris, France.
20–26	Golden Celebration of Oil and Gas, Findlay, Ohio.
25–27	National Oil Scouts Association, Dallas, Texas.
JULY	Seventeenth International Geological Congress, Moscow, U.S.S.R.
SEPT. 15–17	National Petroleum Association, Hotel Traymore, Atlantic City, New Jersey.
SEPT. 27 OCT. 1	American Gas Association, Cleveland, Ohio.
OCT. 11–16	Oil World Exposition, Houston, Texas.
14–16	Independent Petroleum Association of America, Houston, Texas.
29–30	Mid-Continent Oil and Gas Association, Texas Division, Dallas, Texas.
NOV. 9–12	American Petroleum Institute, (Annual), Chicago, Illinois.

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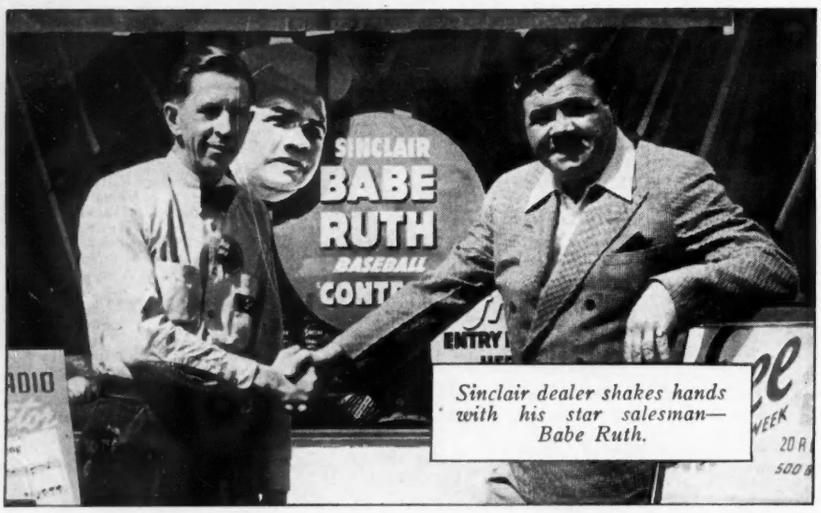


Sinclair dealer shakes hands with his star salesman—Babe Ruth.

LET Babe Ruth boost your Sales

Wouldn't you like to have Babe Ruth sell for you . . . on the radio . . . on posters . . . in magazines . . . newspapers . . . movies? That's just what he is doing in the Sinclair-Babe Ruth Baseball Contest for every Sinclair distributor, jobber and dealer.

Every week motorists are flocking to Sinclair dealers' stations for free contest entry blanks. They're after the two Nash 8's and 520 other weekly prizes. And they give Sinclair dealers thousands of new sales opportunities. Let the Babe Ruth Baseball Contest build business for you this spring. Just phone the local Sinclair office or write to Sinclair Refining Company (Inc.), 630 Fifth Ave., New York City.

SINCLAIR

11,500 posters like this go up May first in the vicinity of Sinclair dealers' stations throughout the country. Other advertising includes Babe Ruth broadcasts twice each week over 61 CBS stations, newspaper and magazine ads.

LOOKING AHEAD

WITH THE EDITOR

Vast Savings Possible Through Better Wire Rope Maintenance Equipment Care Series Starting Next Week . . .

IF shown how to save large sums of money annually, to get longer service from equipment and fewer shutdowns, there shouldn't be anyone who wouldn't want to avail themselves of the opportunity. Such a course is open in the oil fields to those willing to give closer attention to the proper care of wire ropes. By eliminating unnecessary abuses that frequently occur during installation, and by properly maintaining both rope and contacting equipment, it is possible to prevent the greater portion of oil field wire rope failures that rob users of a terrific toll annually. The possibilities are shown by the fact one large concern actually saved $100,000 in a single year. A comprehensive, authoritative article to be published next week will point out practices that inflict undue damage, and the correct ways of handling wire ropes. It is to be unusually well illustrated, having 34 views, which will show incorrect and correct practices, as well as the injury that may result.

THE article on care of wire ropes is the first of a series of similar articles on various oil field equipment that we will publish. These are to be known as The OIL WEEKLY'S "Equipment Care Series." So many oil operators have told us that "abuse of equipment" is the most serious problem existing in the operating divisions of the industry today, we feel there can be no greater contribution to the oil business than the publication of this series. Additional information on this very valuable series appears between pages 18 and 19 of this issue.

THIS WEEK

» A RECORD-BREAKING WELL is Humble Oil & Refining Company's Ellender 1, in the Houma field of Southern Louisiana. By setting 9⅝-inch casing at 8735 feet, it landed the longest string of this size. More recently, it established another record by setting 7-inch pipe at 12,097 feet. Still another mark was made in drilling to 12,165 feet with 4½-inch drill pipe. The photograph shows the crew making up the 4½-inch drill pipe string preparatory to reaming for setting the 7-inch casing. Ellender 1 may become the deepest producing well in the world, as it is now testing at little below 12,000 feet.

INEFFECTIVE control of crude oil production mars the industry's present situation and clouds the outlook.

Additions to crude storage have been under way steadily for 13 weeks, during which time stocks have been increased over 15,000,000 barrels. Further additions are in prospect, moreover, for the rest of this month, under the prevailing allowables. A large increase in crude stocks occurred in April despite somewhat stricter allowables, indicating there may have been some flattening out of the hitherto sharply rising trend of oil consumption.

To assure favorable results in the future, especially strict allowables in the leading producing states are needed. **Page 14.**

TITLE to thousands of acres of California oil lands was placed in jeopardy May 5, when the House naval affairs committee appointed a subcommittee to study the possibilities of recovering the holdings for the government. The committee is holding hearings on the Walsh bill, which would consolidate naval reserves, many of which have been leased to private owners. **Page 11.**

MEMBERS of the House Cole oil subcommittee, which is studying the Connally contraband act, are expected to prepare a favorable report. However, it is likely that a two-year extension of the act will be favored, rather than making it permanent. **Page 10.**

FEDERAL support of a proposed 10 percent production tax on petroleum, gas and sulphur produced in Texas is being sought. **Page 10.**

AN interesting discussion of the currently popular question of well spacing is presented by S. F. Shaw. He concludes that drilling is an operation carried out to make a profit, and therefore the price of oil enters the picture, and has a decided bearing on the policy to be pursued. In times of low crude prices, production exceeds demand and is curtailed, and it is logical to reduce the density of wells. However, when crude prices are high, demand is balanced with the yield, and the desire is to produce maximum amounts—and more wells are drilled for this purpose. Therefore, thoughts on the question of proper spacing are likely to revolve around price levels, and change with conditions. **Page 24.**

CURRENT SITUATION

(Latest Available Weekly Data)

Outlook.—Marred by prospect of further additions to crude storage during May.

Crude Market.—Hindered by continued excessive production.

Refined Oil Markets. — Marking time; prices same as week ago.

Crude Production.—Up further, again reaching new peak.

Crude Runs to Stills.—Up 15,000 barrels to new all-time peak.

Crude Stocks.—Up 1,805,000 barrels in week ended April 24; gain of 15,526,000 in 13 weeks.

Gasoline Stocks.—Down further by 30,000 barrels, as demand proves fair.

Gas and Fuel Oil Stocks.—Up 430,000 barrels.

Drilling.—Completions up 90 last week; total 615 wells.

See* MARKET SECTION *for Details

THROUGH study and detailed well information it should be possible for the art of shooting to approach a more exact science, and thus serve the producer far more efficiently, in the opinion of Harry M. Ryder. This would enable engineers to predetermine the desired result, and then specify the correct necessary to do the particular job. **Page 18.**

CONTROL of high-pressure distillate wells is an interesting problem that has arisen with the completion of a number of such producers. The Dickinson-Gillock field of the Texas Gulf Coast has several high-pressure distillate wells, which are being successfully produced through efficient and flexible control systems. A description of the elaborate units in use is presented. **Page 30.**

A VERY interesting pipe line river crossing job was performed in record time last week. Humble Pipe Line Company laid eight parallel lines across the 37-foot deep Houston ship channel, and traffic was interrupted but 3½ hours. All the pipe was consolidated into one unit on the shore and pulled across to the opposite bank. **Page 36.**

Connally Bill

HOUSE INDICATES ONLY TWO-YEAR CONTINUANCE

Washington, D. C.—Members of the Cole oil subcommittee of the house interstate and foreign commerce committee May 3 indicated their belief that a favorable report would shortly be submitted to the full committee on the Connally bill to extend the contraband oil act.

The house group, however, it was intimated, would favor continuance of the law for a period of two years only, rather than permanently, as provided in the measure passed by the Senate in March.

It was not anticipated that any other changes would be made in the bill, but that the amendments providing for a $5 minimum wage for a six-hour day, offered by labor representatives, and for disintegration of the industry as asked by the independent marketers, would be rejected as "not germane" to the measure.

Frey Gives Opinion

The hearings were brought to a close by the subcommittee May 3 with the testimony of Dr. John W. Frey, associate director of the petroleum conservation division of the interior department, who took the attitude that there is nothing in the Connally act that protects the producer against hazards in drilling or marketing or that makes it impossible for the independent jobbers to do business on a profitable basis, as had been claimed by opponents of the legislation.

"From the complaints made by jobbers at the senate hearing," he said, "it would appear that some of them believe that the Connally act is the answer for the producers' problem and for the problems of the integrated companies, at the same time being the source of the jobbers' difficulties. It hardly seems possible that any law influencing only one phase of oil commerce could be an unadulterated benefit to one group of marketers and a curse to another, for the variety of marketing operations within any particular similar type of distributors is often very different."

Price Policies Cause Differences

Much of the differences between wholesalers, he explained, is occasioned by price policies. Among the various groups there are certain jobbers who are committed to a policy of large volume at smaller margins, whose activities naturally affect competitors handling smaller volumes at larger margins.

"While the Connally act does not balance supply with demand and has no direct application to price wars," he pointed out, "the fact it has assisted the states with conservation laws in stopping the flow of contraband oil has brought a reduction in the quantity of hot oil and products, and this, in turn, has tended to reduce the number of price wars.

"This reduction in price wars has been of benefit to many jobbers and service stations because they have been able to secure the full margin instead of a fraction of it.

"Chaotic markets are most profitable to a limited type of distributor, so, for marketers of that type it is unfortunate that the prevention of waste in production tends toward the general stabilization of the industry. It seems incredible that jobbers want a return of waste and chaos, for too many of them have bitter recollections of the hot oil days of East Texas prior to the Connally act."

Exports Versus Imports

Discussing the current situation with members of the sub-committee, Dr. Frey warned that California, now exporting about one-third of our total foreign shipments of oil, is going to be short of petroleum in a relatively brief time, leading Representative Pettengill of Indiana to reiterate his criticism of the present import taxes as being directly contrary to the spirit of conservation because they limit the entry of foreign oil without restricting the shipment abroad of the domestic product.

"I want to ask you whether it would be a good policy to permit for every barrel of exports of American oil the importation of one barrel of foreign oil, all in the interest of conservation," he said.

"I think it would be better than the situation we now have," the interior department official replied.

First effect of the criticism of the import taxes was the introduction in Congress May 3 of a bill by Representative Daly of Pennsylvania to repeal the oil duties.

The bill was referred to the ways and means committee for consideration, but in view of the need of the government for all revenues it can secure, it is not expected any action will be taken by the committee this session.

Federal Backing

SOUGHT ON PROPOSED TEXAS 10 PER CENT PRODUCTION TAX

Washington, D. C.—Federal support for a 10 percent production tax which he proposed on petroleum, gas and sulphur produced in Texas was urged upon Congress May 4 by Representative Poage of that state as a duty of the government to aid the states to support themselves.

Asserting that 90 percent of all oil-producing properties in Texas are owned by citizens of other states, Congressman Poage declared that the foreign "oil lobby" has been active in fighting every effort of the producing states to raise revenues by taxes on natural resources and that the federal government should enact legislation declaring its support of such taxes.

Either Oil or Sales Tax

Unless a high production tax can be adopted, he said, it will be necessary for Texas to enact a general sales tax. The 10 percent production tax would bring in about $50,000,000 a year, he estimated, but because of its favorable position with respect to transportation charges as compared with other producing states, Texas' markets for oil would not be seriously affected.

"Long ago," Poage told the House, "the industrial states learned the gentle art of passing their taxes on to those communities, such as Texas, which produce raw materials and buy manufactured articles. It is true that those of you who have recently purchased automobiles found in the bill for your car no mention of a tax to the state of Michigan, but it was included in the manufacturer's costs, and you paid it nevertheless. The tax on automobile manufacturers is but an example—the same principle is followed by all of the manufacturing states of the world and we pay the bill.

"Nor can we of the 'raw material' states protect ourselves by the adoption of a like tax, because we do not manufacture any appreciable quantity of world necessities, but we do produce great quantities of indispensable basic natural resources that these same industrial states must have. Nor is there any good reason why the state of Texas should not constitute the exploiters of these resources, tax-collecting agencies for our own state, to collect from the people who finally use these resources a small sum to compensate our state for the use of these irreplaceable assets.

"If we collect money by a natural-resource tax, we will actually bring new money into Texas," he continued. "A natural-resource tax must obviously either be paid by the producers and taken out of profits—stockholders' dividends—or it must be added to the cost and passed on to the ultimate consumer of the product. The oil and sulphur companies claim that the stockholders would have to absorb the tax. If this were true—and I do not think anyone believes it is—it must be admitted that most of the stock is owned beyond the borders of the state, and therefore the tax would be paid by foreign stockholders."

Lands Jeopardized

FEDERAL GOVERNMENT MAY TRY TO RECOVER TITLES

Washington, D. C.—Title to thousands of acres of California oil lands originally acquired by the Southern Pacific Railroad and now in possession of various interests was placed in jeopardy May 5 when the House naval affairs committee halted hearings on the Walsh bill consolidating the naval reserves, and appointed a subcommittee to study to possibility of recovery of the lands by the government.

The subcommittee, composed of Representatives Patrick H. Drewry of Virginia, chairman; Casey of Massachusetts, Phillips of Connecticut and Magnuson of Washington, Democrats, and Millard of New York, Mott or Oregon and Brewster of Maine, Republicans, was instructed to report back to the full committee by June 1.

While the subcommittee was ordered to investigate the legal phases of the situation with respect only to lands claimed by Standard Oil Company of California in Naval Reserve No. 1, and by that and other companies in Reserve No. 2, members of the committee declared that if it is felt there is good ground for recovery of those lands, there should be no bar to the recovery of oil lands lying outside the reserves.

Discussion of the matter by the committee developed that under an act of July 27, 1866, to assist the building of the Atlantic & Pacific Railroad, now the Southern Pacific, the company was to be given alternate sections of land along its right of way, but the act specifically provided it was not to be granted any mineral lands.

Lands Patented in 1902

The lands in Naval Reserve No. 1, which the Navy Department seeks to consolidate under the Walsh bill, were patented prior to 1902 and later sold by the Southern Pacific to its wholly-owned subsidiary, the Pacific Oil Company, which in 1926 was consolidated with Standard Oil Company of California.

Determination to appoint a subcommittee to investigate the situation was reached by the committee after members had poined out that it should not be necessary to charge fraud in order to secure reversion of title to the government, since the act of 1866 specifically prohibited the railroad company from acquiring any mineral lands and the Interior Department, accordingly, had no authority to patent such lands to the Southern Pacific.

If the subcommittee finds that ground exists for reversion of title to the government, it is expected legislation will be introduced declaring the United States the rightful owner of the lands. This would make it necessary for the present holders to take the initiative in any contest and relieve the government of the task of attempting to acquire the lands by litigation, faced by the adverse influence of its failure to act earlier under a 70-year-old statute.

Enactment of the Walsh bill to consolidate the naval oil reserves is necessary for their conservation and some one should have the authority to conduct the negotiations and make conclusive arrangements, it was declared May 3 at the opening of the hearings by Rear Admiral G. J. Rowcliff, judge advocate general of the navy.

Outlining to the committee the history of Reserve No. 1, to which the legislation is primarily directed, Admiral Rowcliff said the reserve was created by executive order on September 2, 1912. and consists of 38,073 acres in the Elk Hills district of Kern County, California, of which the government owns 32,141 acres, Standard Oil Company of California owns 4662 acres, and the remaining 1270 acres, comprising Sections 16 and 36, are in litigation.

The government has leased 429 acres for offset wells to prevent drainage, of which 142 acres are leased to the Belridge Oil Company and 287 acres to the Pan American Petroleum Company.

Suit to Dispossess

With respect to the two contested sections, the admiral explained, suit was brought by the government at Fresno, California, January 20, to dispossess Standard Oil Company of California and secure an accounting for the value of oil and gas production taken from the lands, estimated to amount to about $13,000,000 and interest. The estate of E. L. Doheny, in the compromise of its claim, quit claimed to the United States all interest in the lands.

"The government stands a very fair chance to retain both Sections 16 and 36, and the only non-government owned lands in the reserve are the 4662 acres owned by Standard Oil Company of California," he said.

"The enactment of the bill would authorize the secretary of the navy to proceed with the negotiations to acquire a part or all of the 7½ sections and thus eliminate the danger of drainage from future operations."

Captain H. A. Stuart, director of naval petroleum reserves, outlined the purposes of the bill and explained that by concentrating all holdings of the Standard Oil Company in one part of the reserve the "drainage line" will be shortened from 14 to 3 miles.

Two Are Questioned

Both Admiral Rowcliff and Captain Stuart were questioned closely by members of the committee as to why the government could not force the return of the Standard lands, rather than sanctify what navy department officials consider a fraud by "swapping" lands. There was no suggestion that the oil company had been party to any fraud, but rather that the act of 1866 under which the land was to be given to the Southern Pacific Railroad and the patents granted thereunder were faulty.

Captain Stuart explained to the committee how development of the naval reserve lands has been halted by a "gentlemen's agreement" with the Standard Oil Company of California, drawing from Chairman Vinson a question as to why, if there was an agreement, the department asked for the legislation. The navy officer explained that the situation might change at any time and that the Standard had warned it might have to develop certain of its lands at almost any moment to protect itself against drainage.

Would Cost $75,000,000

Answering other questions by committee members, he said it would cost from $75,000,000 to $100,000,000 if the government had to purchase all the Standard Oil Company holdings and explained that the initial effort would be toward effecting an exchange of lands.

Members of the committee, after exploring the possibilities of challenging the oil company's title to the lands, demanded that some official of the department of justice appear before them to explain why the government dropped its efforts to do so some 17 years ago. Navy department officials declared the belief that the government should have continued that effort.

Returning before the committee May 5, Admiral Rowcliff explained that he had asked the Department of Justice to send a representative to the hearings and to render the opinion sought as to the present status of the situation, and had been informed by Attorney General Cummings that it was impossible to send a witness on such short notice but that an opinion could be prepared on the various points raised "in two or three weeks."

Declaring that he had been much impressed with the testimony previously given, Representative Phillips urged that the committee request an opinion from the Attorney General as to whether further legal action should be taken to recover the lands, other than on the ground of fraud, on the basis that lands having valuable minerals cannot be ceded away by the government; as to whether the government should take action for recovery of lands in Reserve No. 2 as well as in No. 1, and whether the leases made in Reserve No. 2 by former Secretary Fall were valid.

Captain Stuart's explanation of the department's failure to keep after the lands drew from Chairman Vinson

COMPACT MEETING Will be held on May 10 in New Orleans

Austin.—Representatives of the states who are members of the Interstate Oil Compact will meet in New Orleans on May 10, in response to an invitation from Governor Richard Leche of Louisiana.

This will be the regular monthly meeting of the compacting states, and will be attended by the Governor of Louisiana, although the state is not now a member.

Railroad Commissioner Ernest O. Thompson, Texas' representative on the compact, received the invitation from Governor Leche and expressed the hope that Louisiana might take this opportunity to observe compact operation and later become a member.

sharp criticism, directed, however, more to the Department of Justice than to the Navy, since the latter is forced to abide by decisions of the former.

Members of the committee concurred that some investigation should be made to determine the government's rights in the matter, it being pointed out that if the Walsh bill was passed it would confirm the ownership of Standard Oil Company and other interests to land they now hold in the two reserves.

Series of Questions Drafted

Members of the subcommittee met May 6 to draft a series of questions on which an opinion of the attorney general was to be asked by the Navy Department. It was necessary to submit the questions through the department, members explained, because the attorney general is not required to render such opinions for congress.

In order to get a full picture of the background as a basis for the questions, members of the subcommittee asked Captain Stuart for further details, and he again outlined the series of efforts to regain the reserves which ended with the opinion of District Court Judge Bledsoe in 1919.

"As a matter of fact," Representative Magnuson said following Captain Stuart's explanation, "you believe, as a proposition of law, we are estopped because of our failure to appeal the case back in 1919 and that puts us now, in the position where we will have to pass this bill."

Following a lengthy discussion of the pertinancy of several suggestions, the committee adopted a series of questions drafted by Representatives Mott and Vinson, the gist of which was as follows:

Regardless of the question whether or not any fraud entered into the acquisition of the lands in Naval Reserve No. 1 by the Southern Pacific, are the lands recoverable by the United States? If so, what is the appropriate procedure to recover and revest them in the government? If fraud entered into the acquisition of the lands other than the particular portion thereof included in the Elk Hills and Southern Pacific cases, are the lands now recoverable? If so, what is the appropriate procedure? What facts were so dissimilar in the two cases as to justify different decisions in the Elk Hills and Southern Pacific suits?

Has the action in the Southern Pacific case become final or may it be reopened by further proceedings?

What further legislation, if any, is necessary to authorize the attorney general to proceed to revest title in the United States? In addition, as a separate question, the attorney general is to be asked to render an opinion whether the leases granted by former Secretary of the Interior Fall on oil lands in Naval Reserve No. 2 are legal and valid or should the government take some legal action to set them aside. In order that the Walsh bill may be enacted without delay, if no other method of dealing with the situation is found, the attorney general was asked to render his opinion on these points by June 1, if possible, at which time the committee will again take up the legislation.

Oil Conference

PENNSYLVANIANS DISCUSS FIELD OPERATING PROBLEMS

State College, Pa.—Production, transmission and sales problems were discussed at the seventh annual petroleum and natural gas conference held at Pennsylvania State College April 30 and May 1, and sponsored by the Pennsylvania Grade Crude Oil Association, the Bradford District Pennsylvania Oil Producers Association, the Pennsylvania Natural Gas Men's Association and the school of mineral industries of the college.

Under the direction of Dr. Sylvain Pirson, chairman of the department of petroleum and natural gas engineering of the college, this year's meeting drew the largest attendance since the series was inaugurated in 1931. Papers on petroleum problems were presented at the first day's session, of which A. L. Foster, National Petroleum News, was chairman, while natural gas subjects were given attention on the second day, with W. H. Locke, Oil City, Pa., vice president of United Natural Gas Company, presiding.

Dr. A. W. Gauger, of the school of mineral industries, was toastmaster at the banquet session held at the close of the first conference day. Brief talks featured the evening program. Christy Payne Jr., Pittsburgh, assistant to the vice president of Peoples Natural Gas Company, described governmental regulation and labor troubles as the most serious possible problem of the natural gas industry. E. E. Brown, Bradford, Pa., refinery manager, Kendall Refining Company, outlined the future of oil refining and expressed the hope that it held lower taxes. Mark C. Malamphy, Cumberland, Md., spoke on the mineral resources of Brazil.

Abstracts of the papers presented follow:

Need Greater Shooting Control

The closer spacing of wells and important control of pressures has brought about a need of much greater control of shooting, Harry M. Ryder, Bradford, Pa., of Ryder-Scott Company, pointed out in his paper on "Well Shooting with Special Reference to Secondary Recovery Operations." He declared the actual increase of the diameter of the hole is very erratic and cannot account for the extent of the shooting, and cited illustrations proving that the effectiveness of a shot is due in a large measure to the radical fracturing that occurs. Effective diameters, referring to the diameter of a hole whose effect would be equivalent to the irregularly fractured area a shot creates, as great as 40 to 50 feet were mentioned. His paper is presented in full elsewhere in this issue.

Declaration that heavy shots should be used on soft, elastic and less frangible formations and that light shots should be used on har face, more frangible surfaces, was made by Paul F. Lewis, Tulsa, of E. I. du Pont de Nemours Company, in the discussion that followed Mr. Ryder's paper. Lewis also said that the tendency of shot effects is first outward and then upward, and not entirely lateral, and prescribed a ratio of four feet of dry sand and eight feet of wet sand to every foot of shot in sand tamped shooting.

Discuss Electrical Logging

W. J. Gillingham, Houston, of Schlumberger Well Surveying Corporation, in a paper entitled "Application of Electrical Well Logging in the Appalachian Fields," described measurements of resistivity and spontaneous polarization effects. The resistivity effect gives a measure of the reciprocal of the conductivity off the formation and, therefore, will show presence of salt water, he said, while the spontaneous polarization effect gives a measure of the fluid flow into a formation and, therefore, some idea of the permeability of the formation in its natural state. A number of diagrams to show agreement in the Bradford field between permeabilities measured electrically and permeabilities measured in laboratories were exhibited.

When pressure is applied to a well, a definite relationship between the electrical permeability and the pressure applied can be obtained, Gillingham said. By this means a determination of how a sand is flooding can be secured. Such data as the best pressure at which to flood, the amount of floodable sand and the best packing points can thus be obtained. The speaker also described how the actual position of the entrance of water in a well can be determined accurately by the Dale photoelectric apparatus.

Better Cathodic Protection

Further improvement in cathodic protection, leading ultimately to coating of new lines to make reconditioning a thing of the past, was forecast by A. L. Black, New York, of Ford, Bacon & Davis, Inc., in his paper on "Pipe Line Corrosion, Electrolysis and Cathodic Protection." The various methods of electrical protection were described by Black, who pointed out how the optimum condition is obtained neither by cathodic protection nor by coating. Cathodic protection for lines in a water flood project would be impractical, as each line would require individual protection thus making the cost prohibitive, he said.

Gas Sales Problems

Education of the public in the fact that natural gas rates should raise with increased costs in supplying service,

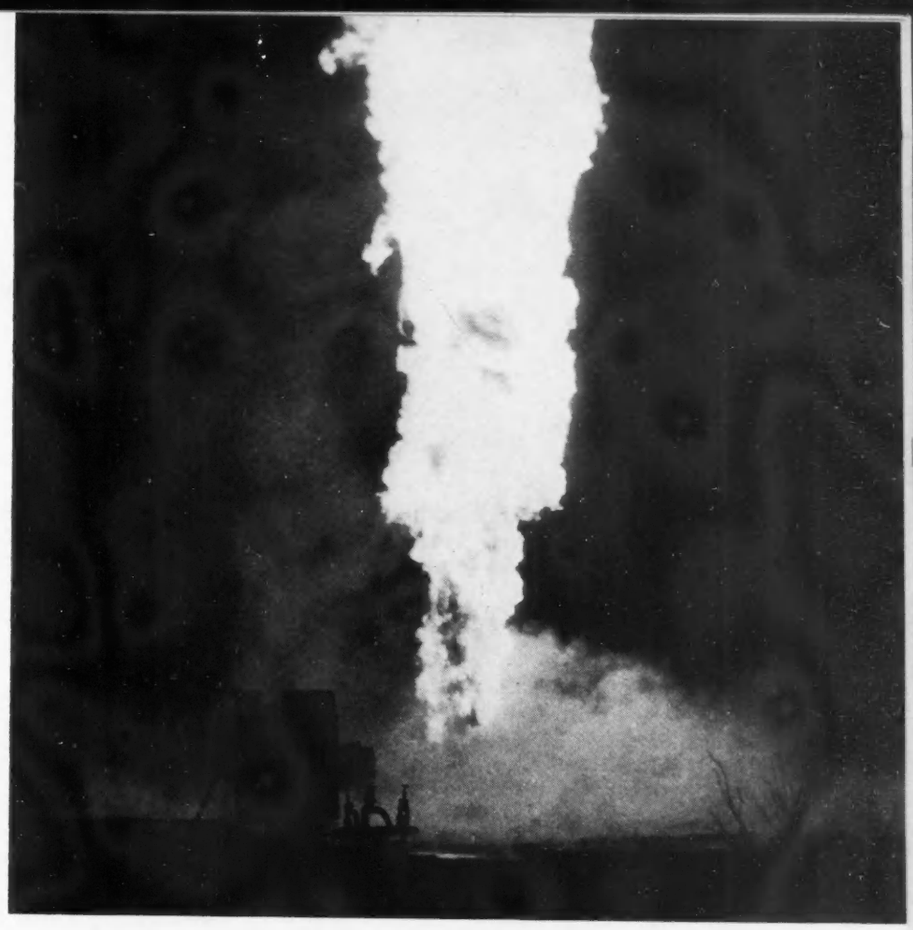
[*Continued on page 56*]

EASTERN A.P.I.

Frank E. Eckert elected chairman of division

Columbus, Ohio.—Prospects of future production of petroleum in some of the older oil-producing states, and the application of modern production methods in established fields in the Eastern sector of the United States, were the principal subjects discussed at the annual meeting of the Eastern District of the Division of Production of the American Petroleum Institute. The meeting took place May 6 and 7 at Columbus.

New officers of the Eastern District, Division of Production, American Petroleum Institute, elected here May 7, are: Chairman, F. E. Eckert, Hanley & Bird, Bradford, Pennsylvania; vice chairmen, George Wittmer III, Wittmer Oil & Gas Company, Pittsburgh; Fred Benkert, Peoples Natural Gas Company, Pittsburgh; J. J. Schmidt, East Ohio Gas Company, Cleveland; S. V. Pirson, School of Mineral Industries, State College, Pennsylvania; Christy Payne, Jr., Peoples Natural Gas Company; D. T. Ring, Ohio Fuel Gas Company, Columbus; secretary-treasurer, T. H. Myers, Carnegie Natural Gas Company, Pittsburgh; advisory committee: J. C. Askam, chairman, Ohio Oil Company, Findley; S. J. Brendel, Penn United Gas Company, Pittsburgh, F. M. Brewster, Quadrangle Drilling Company, Bradford, E. F. Clagett, Pure Oil Company, Saginaw, Michigan; P. H. Curry, South Penn Oil Company, Pittsburgh; Forest D. Dorn, Forest Oil Corporation, Bradford; K. C. Heald, Gulf Oil Corporation, Pittsburgh; D. S. Keenan, Kentucky-West Virginia Gas Company, Ashland, Kentucky; S. W. Meals, Carnegie Natural Gas Company; J. G. Montgomery, Jr., United Natural Gas Oil Company, Fifty, Pennsylvania; J. H. Newlon, Philadelphia Company, Pittsburgh; H. H. Phillips of Phillips Drilling Company, Butler, Pennsylvania; John Post, Oil Well Supply Company, Oil City; C. C. Reed, Hope Natural Gas Company, Clarksburg, West Virginia; J. R. Reeves, Cities Service Company, Elmira, New York; J. French Robinson, Peoples Natural Gas Company; Frank Schauer, Equitable Gas Company, Pittsburgh; E. N. Smith, National Superior Company, Pittsburgh; F. N. Speller, National Tube Company, Pittsburgh; Don Wilson, Columbia Gas & Electric Company, New York; R. T. Zook, Sloan & Zook, Bradford.



SIX HUNDRED BARRELS HOURLY is estimated to have burned during the eight days Continental Oil Company's State 1-C-16, Monument field, Lea County, New Mexico, was on fire. Several interesting and unusual conditions were encountered in extinguishing it. Likewise, some new fire fighting practices were employed. The fire was put out by exploding 155 quarts of gelatin, the largest quantity ever used for this purpose. The story is told on Page 50 of this issue.

Blow to Unions

HUMBLE REFINERY WORKERS VOTE FOR COMPANY UNION

Houston.—An important blow was dealt last week to the campaigns of both the C.I.O. and the A. F. of L. for organizing oil industry workers, when the Humble Oil & Refining Company employes at Baytown, Texas, refinery declined to tie up with either and instead voted for a local employes' federation as the sole bargaining agency under the Wagner labor act.

Among the "Standard Oil" employes left without any union affiliation, through the recent withdrawal of the Humble company and other Standard companies from their long-established "company unions," the Humble workers faced the choice of forming their own bargaining agency or of joining up with either John L. Lewis' Committee for Industrial Organization or William Green's American Federation of Labor.

By the overwhelming vote of 2516 to 79, the Humble employes at Baytown chose to remain independent of the national unions, by functioning through the Humble employes' federation. Approximately 900 of the refinery's 3500 employes did not participate in the election, among them being about 300 department heads and administrative officers not eligible for membership in the federation. It was estimated about 200 of the 900 employes not represented in the voting were on sick leave or vacation.

Unions Continue Drive

Meanwhile, organization efforts continued in the oil country by both the C.I.O. and the A. F. of L.

At a membership rally at the Fort Worth court house May 3, the International Association of Oil Field, Gas Well and Refinery Workers, not affiliated with the C.I.O., launched a campaign for 2000 members among oil workers in that territory. About 125 men attended the court house meeting.

In the Tulsa territory, labor activity has been extensive, and rivalry has become bitter between the C.I.O. and A. F. of L. leaders.

In the Lance Creek field, Wyoming, the effort of the C.I.O. to organize oil field workers was reported to have proved ineffective.

The executive council of the International Association of Oil Field, Gas Well, and Refinery Workers unions and directors of the C.I.O. drive in the oil industry in the Texas-Louisiana coastal country last week approved plans to establish 10 new locals in that district. Mass meetings are scheduled to be held at various places in the area.

Allowables Permit E

CONTINUED large additions to crude storage indicate that state programs still are not sufficiently strict. Early tightening of production control is needed.

By L. J. LOGAN,

AFTER experiencing success for many months, through a balancing act, the oil industry finally has run into trouble.

The balancing feat consists of making the new supply of oil conform with the consumer demand.

Prior to the early part of this year, the act could be performed with the greatest of ease.

But lately the balancing feat has turned difficult.

Easy in Past

Until a few months ago there seemed to be very little to the trick. On one side of the scales, the allowable crude oil production would be placed. On the other side, the consumer demand would come pouring in, and at the end of the month the scales somehow always would be about in balance.

Even when a little carelessness entered into the performance of the act, it didn't seem to matter much. If rather heavy allowables were put on the scales, similarly heavy demand would crop up, and as the month ended, the two sides of the balance would be about even.

When equilibrium was not achieved, it usually was the demand side of the scales that proved heavier, and the allowables side that proved light.

The demand repeatedly proved larger than anticipated.

Consequently, it came about that the allowables were deliberately made comparatively large, in the expectation that demand would be correspondingly large. This less conservative attitude toward the allowables developed around the beginning of this year.

Demand Less Brisk

But since then, ironically, there has occurred a change in the demand situation. It appears that there has been a flattening out of the hitherto sharply rising trend of oil consumption.

The demand lately has been falling somewhat short of the high expectations, although continuing to run well above last year's pattern.

If there had been a persistent sticking to the former conservative attitude in forecasting demand and fixing allowables, there would have been in recent months a virtual balance between the new supply of oil and the consumer requirements, despite the indicated flattening out of the trend of demand.

But the less conservative policy regarding allowables lucklessly was adopted simultaneously with the unforeseen flattening of the demand curve.

Supply Exceeds Demand

Consequently, the balancing act lately has been missing the mark, and it has been the allowables side that has been too heavy. The new supply of oil has outweighed the demand, even though the demand has been the greatest in history.

The excess of supply over demand has run off into storage. Some of the excess has been backing up in the crude oil storage tanks, while some has been accumulating at the refineries after being processed. The stocks of crude oil have been increasing steadily and rather sharply for about three months. Gasoline stocks, built up this spring to an all-

Excesses of Average Daily Crude Production Above Bureau of Mines Recommendations in Past Six Months

(Barrels Daily)

Note: Production figures calculated from American Petroleum Institute Reports.

MONTH	California	Kansas	Louisiana	New Mexico	Oklahoma	Texas	Other States	United States
November, 1936:								
Production	584,013	160,772	233,785	83,432	566,258	1,151,233	240,540	3,020,033
Demand	549,600	154,500	198,600	75,600	558,400	1,109,300	224,300	2,870,300
Excess	34,413	6,272	35,185	7,832	7,858	41,933	16,240	149,733
December, 1936:								
Production	587,393	170,516	240,566	85,390	581,980	1,204,571	239,169	3,109,585
Demand	553,400	155,900	204,800	78,300	567,000	1,145,200	225,700	2,930,300
Excess	33,993	14,616	35,766	7,090	14,980	59,371	13,469	179,285
January, 1937:								
Production	589,374	169,068	244,523	92,365	587,316	1,252,056	238,688	3,173,390
Demand	559,900	165,600	216,300	79,800	573,100	1,176,000	227,700	2,998,400
Excess	29,474	3,468	28,223	12,565	14,216	76,056	10,988	174,990
February, 1937:								
Production	587,793	177,989	243,598	96,896	605,143	1,323,775	242,534	3,277,728
Demand	573,300	170,000	225,100	81,600	581,900	1,203,400	233,300	3,068,600
Excess	14,493	7,989	18,498	15,296	23,243	120,375	9,234	209,128
March, 1937:								
Production	589,439	186,731	245,115	102,229	627,763	1,392,742	251,087	3,395,106
Demand	570,900	178,000	240,000	88,200	590,700	1,256,600	234,600	3,159,000
Excess	18,539	8,731	5,115	14,029	37,063	136,142	16,487	236,106
April, 1937:								
Production	621,226	191,426	248,826	105,510	657,586	1,380,008	260,601	3,465,183
Demand	579,900	183,000	244,800	91,400	609,600	1,297,900	236,400	3,243,000
Excess	41,326	8,426	4,026	14,110	47,986	82,108	24,201	222,183

Excess Production

Associate Editor

CRUDE stocks have increased every week for 13 weeks, showing 15,000,000-barrel gain for period. Further additions to storage in prospect for rest of month.

time peak, now are somewhat greater than justified, despite the comparatively large current and prospective consumption.

Consumption Slows Down

It has taken some time for the slowing down of demand to manifest itself. But the figures showing continued increasing crude oil stocks through April, despite somewhat tightened allowables, furnishes the evidence. The April allowables were closer to the forecasts of demand than those of March had been. It was expected, consequently, that April would bring some correction of the unbalanced supply and demand situation and a reduction of runs to storage. But instead, April brought larger additions to storage than did March or February. Obviously, something has been going wrong somewhere.

The explanation is, apparently, that the consumption of oil simply has been failing to measure up to the expert anticipations. While the allowables have been tightened a little, the demand apparently has contracted an even greater extent. The incontrovertible result, at any rate, has been an increased running of oil to storage.

May Storage Gains Likely

Furthermore, no relief is in prospect before June 1, when the next new allowables will be promulgated. Those for May already are in effect, and it so happens that they are somewhat farther above the forecasts of demand than were the April allowables. In view of the results that the April allowables gave, it is indicated that the May allowables may cause greater additions to storage than the rather alarming increases that occurred in April.

Stricter Allowables Needed

It would be possible, of course, for the leading producing states to take cognizance of the dangerous situation and to provide some relief by issuing emergency orders at the middle of May, cutting allowables back into closer conformity with the actual market requirements. Such emergency orders have been issued in the past, when found advisable. Such orders now certainly would be advisable and fully justified.

Similarly, exceptional self-restraint will be urgently needed when the June allowables are prescribed. It will be the part of wisdom for each

Stocks of All Oils in the United States

At end of each year since 1918, and at end of each month in past year.

(Bureau of Mines Figures)

DATE	BARRELS				Days' Supply
	Crude Oil	Natural Gasoline	Refined Products	Total Stocks, All Oils	
End of Year:					
1918	.....	.....	.....	193,411,000	165
1919	.....	.....	.....	200,383,000	164
1920	.....	.....	.....	209,845,000	156
1921	.....	.....	.....	294,428,000	203
1922	.....	.....	.....	385,349,000	239
1923	.....	.....	.....	492,088,000	235
1924	.....	.....	.....	520,287,000	236
1925	.....	.....	.....	552,464,000	239
1926	.....	.....	.....	527,084,000	210
1927	.....	.....	.....	597,176,000	231
1928	.....	.....	.....	621,010,000	223
1929	.....	.....	.....	†689,497,000	228
1930	411,882,000	3,100,000	251,680,000	666,662,000	224
1931	370,194,000	2,825,000	258,879,000	631,898,000	221
1932	339,875,000	3,203,000	249,116,000	592,194,000	230
1933	354,223,000	3,680,000	244,295,000	602,198,000	226
1934	337,254,000	3,740,000	223,356,000	564,350,000	199
1935	314,631,000	3,698,000	223,371,000	541,700,000	166
End of Month:					
January, 1936	313,081,000	3,936,000	224,318,000	541,335,000	174
February	310,812,000	4,218,000	228,214,000	543,244,000	179
March	313,189,000	4,553,000	231,063,000	548,805,000	183
April	315,389,000	5,058,000	230,672,000	551,119,000	171
May	315,169,000	5,664,000	233,590,000	554,423,000	173
June	311,046,000	5,829,000	233,421,000	550,296,000	161
July	306,390,000	5,846,000	233,262,000	545,498,000	161
August	301,757,000	5,653,000	234,756,000	542,166,000	157
September	295,693,000	4,945,000	231,842,000	532,480,000	146
October	292,271,000	4,555,000	230,605,000	527,431,000	148
November	288,998,000	4,153,000	229,122,000	522,273,000	149
December, 1936	288,184,000	4,055,000	226,407,000	*518,646,000	‡146
January, 1937	286,759,000	4,032,000	229,340,000	520,131,000	155
February	289,972,000	4,290,000	232,314,000	526,576,000	158

Trend of Crude Stocks since end of February; from Bureau of Mines weekly reports.

March 27	293,587,000	.....	.....	.....	.....	....
April 3	297,374,000	.....	.....	.....	.....	....
April 10	297,468,000	.....	.....	.....	.....	....
April 17	298,932,000	.....	.....	.....	.....	....
April 24	300,737,000	.....	.....	.....	.....	....

† The stocks continued rising in first five months of 1930, reaching a peak of 700,808,000 barrels, May 31, 1930
* Smallest for nearly 13 years, or since March 31, 1924, when total was 511,894,000 barrels.
‡ Smallest for 16 years, or since November 30, 1920, when stocks represented 144 days' supply.

United States Gasoline Stocks

Finished and Unfinished

(From Bureau of Mines Reports. Figures indicate barrels)

At End of Month:	1935	1936	1937
January	58,605,000	62,613,000	71,416,000
February	64,888,000	71,604,000	78,413,000
March	66,290,000	74,485,000	*83,538,000
April	58,218,000	73,509,000	†82,273,000
May	61,483,000	71,605,000	.....
June	59,507,000	67,377,000	.....
July	56,446,000	62,446,000	.....
August	45,932,000	59,496,000	.....
September	51,334,000	57,800,000	.....
October	49,798,000	57,662,000	.....
November	52,046,000	58,799,000	.....
December	56,693,000	62,885,000	.....

* Stocks March 27, as reported by the American Petroleum Institute.

†Stocks May 1, as estimated by the American Petroleum Institute.

of the states to adopt allowables at least as low as the Bureau of Mines recommendations, if not lower.

Bureau Forecasts More Accurate

In that connection, it must be recognized that the federal bureau lately has been less conservative than formerly in recommending crude production levels. Having consistenly underestimated requirements in the past, the bureau finally has brought its forecasts considerably nearer the demand that actually is materializing.

Consequently, the federal estimates now cannot safely be exceeded by the states, as in the past. The federal allocations now represent, apparently, fairly accurate forecasts of the demand that is unfolding; and therefore should be welcomed by the state conservation officials as valuable guides, to be followed strictly.

Crude Stocks Increase

The failure to achieve in April a balance of production with demand is revealed in the Bureau of Mines reports on crude oil stocks in recent weeks.

From the beginning of April to April 24, United States crude oil inventories were increased approximately 5,000,000 barrels. That was a greater increase than the 4,000,000 barrels added to storage in the similar period of March. The increased runs to storage occurred, moreover, in the face of stricter allowables. As of April 1, the allowables of the six leading producing states were only 75,099 barrels a day above the Bureau of Mines recommendations, whereas the the March allowables of those states had been 171,742 barrels a day in excess of the federal allocations. (THE OIL WEEKLY, May 3, page 43.)

Further Storage Rise Looms

These figures presage a continuation of heavy runs to storage in May, when considered along with the fact that the May allowables are more liberal than those of April. As compared with the 75,099 barrels by which the six leading states exceeded the Bureau of Mines recommendations in April, an aggregate excess of 96,736 barrels daily is involved in the May allowables.

Stocks Up Sharply

On April 24 the country's stocks of crude oil were up to 300,737,000 barrels, according to the Bureau of Mines. The storage had increased

Average Daily Number of

Wells Completed in the United States

(Including Oil Wells, Gas Wells, and Dry Holes)

MONTH	1933	1934	1935	1936	1937
January	30.0	39.7	47.9	52.4	66.1
February	30.6	38.1	49.6	51.6	58.6
March	26.6	40.6	48.8	60.6	70.4
April	25.5	44.0	58.5	69.2	78.1*
May	25.6	50.7	63.6	71.9	....
June	21.1	51.5	58.6	70.9	....
July	23.1	53.6	60.9	66.6	....
August	30.7	51.3	62.8	70.4	....
September	36.5	43.2	57.9	65.4	....
October	40.9	49.6	57.1	67.8	....
November	46.9	49.9	55.2	67.7	....
December	47.7	48.3	54.2	67.7	....

*Highest since December, 1926, when completions averaged 78.7 daily.

United States Drilling and Production, April, 1937, and Cumulative for Year

STATE OR DISTRICT	MONTH OF APRIL, 1937						CUMULATIVE, JANUARY THROUGH APRIL, 1937					
	*Completions	Oil Wells	Gas Wells	Failures	Initial Prod. Bbls. Daily	Total Bbls. Oil Prod.	*Completions	Oil Wells	Gas Wells	Failures	Initial Prod. Bbls. Daily	Total Bbls. Oil Prod.
Arkansas	13	3	....	10	218	822,200	26	7	....	19	700	3,224,850
California	146	104	1	41	57,243	18,636,800	457	337	6	114	173,489	71,634,300
Colorado	1	....	....	1	.....	130,450	6	1	....	5	2,400	490,550
Eastern States	189	47	92	50	705	3,477,250	930	235	456	239	4,181	13,836,450
Illinois	9	5	1	3	125	.....	20	11	2	7	293	.....
Indiana	6	2	1	3	11	.....	39	12	7	20	127	.....
Kentucky	6	4	1	1	195	.....	56	36	1	19	1,368	.....
New York	....	....	....	....	.....	.....	3	....	1	2	.....	.....
Ohio	93	19	42	32	229	.....	496	114	248	134	1,889	.....
Pennsylvania	18	4	11	3	24	.....	53	13	26	14	167	.....
West Virginia	57	13	36	8	121	.....	263	49	171	43	337	.....
Kansas	209	162	3	44	187,977	5,742,800	701	524	21	156	621,809	21,768,600
Louisiana	52	34	5	13	14,020	7,464,800	211	131	17	63	56,469	29,466,150
North Louisiana	24	17	2	5	3,966	2,158,000	76	49	10	17	15,602	8,783,800
South Louisiana	28	17	3	8	10,054	5,306,800	135	82	7	46	40,867	20,682,350
Michigan	49	34	7	8	24,535	1,314,900	243	121	36	86	59,999	4,230,050
Montana	9	6	....	3	385	474,500	26	19	3	4	1,806	1,900,650
New Mexico	49	48	1	....	74,046	3,165,300	213	196	6	11	348,303	11,913,250
Oklahoma	254	176	10	68	209,819	19,727,600	919	648	48	223	995,467	74,309,200
Southeastern States	1	....	....	1	.....	.....	7	....	....	7	.....	.....
Alabama	....	....	....	....	.....	.....	1	....	....	1	.....	.....
Florida	....	....	....	....	.....	.....	....	....	....	....	.....	.....
Mississippi	1	....	....	1	.....	.....	6	....	....	6	.....	.....
Texas	1,205	908	34	263	1,238,274	41,400,250	4,403	3,292	128	983	4,641,276	160,464,800
East Texas Field	168	164	....	4	734,650	13,731,300	637	613	....	24	2,740,684	54,343,700
Rest of Eastern Texas	86	75	5	6	52,681	3,518,000	308	270	9	29	178,051	13,395,650
North Texas	182	110	....	72	17,696	2,113,950	710	382	4	324	68,803	8,116,200
South Texas	324	218	8	98	82,810	6,765,050	1,190	835	38	317	341,903	25,660,050
Corpus Christi	124	97	....	27	48,942	.....	470	369	5	96	218,772	.....
Laredo District	149	92	7	50	25,291	.....	570	381	32	157	101,876	.....
San Antonio	51	29	1	21	8,577	.....	150	85	1	64	21,255	.....
Texas Gulf Coast	116	89	3	24	37,245	6,002,350	408	295	16	97	114,091	23,302,850
Texas Panhandle	55	37	13	5	17,664	2,269,700	199	145	41	13	71,184	8,824,300
West Texas	232	201	....	31	293,930	6,007,800	812	700	5	107	1,121,986	22,902,250
West Central Texas	42	14	5	23	1,598	992,100	139	52	15	72	4,574	3,919,800
Wyoming	11	8	....	3	5,188	1,598,650	35	25	2	8	14,847	6,110,050
Total United States	2,188	1,530	153	505	1,812,410	103,955,500	8,177	5,536	723	1,918	6,920,746	399,348,900

* April completions cover not the calendar month, but the four weeks, or 28 days, ended April 24.

every week for 13 weeks previously, showing for that whole period, January 23 to April 24, a gain of 15,526,000 barrels, or an average of over a million barrels a week.

Plant Activity at Peak

The backing up of crude oil in the storage tanks in April occurred, moreover, in the face of unprecedented activity at the refineries, where crude runs to stills reached new record levels. In fact, it is indicated that the plants were processing somewhat more crude than the markets justified.

Gasoline Inventories Large

Total stocks of finished and unfinished gasoline in the United States were reduced approximately 1,000,000 barrels in April, as seasonally improving demand manifested itself. That was a normal change in the gasoline stocks, having been about the same as in April, last year.

However, the gasoline inventories had been built up in March to an all-time peak that was perhaps not entirely justified, and despite the million-barrel withdrawal of April, there was still on hand May 1 a total of 82,273,000 barrels of finished and unfinished gasoline.

That quantity was 12 percent greater than the 73,509,000 barrels of gasoline held one year previously.

Such an increase in the gasoline inventories is not fully warranted by the gain that has occurred, meanwhile, in gasoline consumption. So far this year, the gasoline demand has been running about 10 percent higher than last year. In its forecast of requirements for May, the Bureau of Mines estimated that the demand for the month would be 9 percent higher than the indicated "normal" demand of last May.

Crude Production Excessive

While additions to crude storage have constituted the most convincing testimony that crude production has been running too high, additional evidence to that effect is furnished when figures on crude production are considered in relation to the latest available figures on demand for petroleum.

In the first four months of last year, United States crude oil production conformed very closely with the market requirements, as evidenced by the fact crude stocks showed but slight change during the period.

In the first four months of this year, consequently, crude production, if at the proper level, should have been larger only in proportion to the increase that had occurred in demand.

United States Drilling and Production in First Four Months of 1937 and 1936

STATE OR DISTRICT	WELLS COMPLETED			BARRELS OF CRUDE PRODUCTION		
	In 1937 (4 Mos.)	In 1936 (4 Mos.)	Percent Change	In 1937 (4 Months)	In 1936 (4 Months)	Percent Change
Arkansas	26	28	— 7	3,224,850	3,611,750	— 11
California	457	330	+ 38	71,634,300	72,756,436	— 1
Colorado	6	4	+ 50	490,550	535,550	— 9
Eastern States	930	1,025	— 9	13,836,450	12,487,000	+ 11
Kansas	701	448	+ 56	21,768,600	17,562,200	+ 24
Louisiana	211	303	— 31	29,466,150	23,622,250	+ 26
North Louisiana	76	171	— 55	8,783,800	7,212,000	+ 22
South Louisiana	135	132	+ 2	20,682,350	16,410,250	+ 26
Michigan	243	211	+ 15	4,230,050	4,448,050	— 5
Montana	26	30	— 13	1,900,650	1,536,350	+ 24
New Mexico	213	148	+ 43	11,913,250	7,249,250	+ 64
Oklahoma	919	831	+ 11	74,309,200	62,646,150	+ 19
Southeastern States	7	4	+ 75	.....	.....	.....
Texas	4,403	3,666	+ 20	160,464,800	132,088,650	+ 21
East Texas Field	637	901	— 29	54,343,700	53,083,050	+ 2
Rest of East Texas	308	96	+221	13,395,650	5,833,600	+130
North Texas	710	647	+ 10	8,116,200	6,940,450	+ 17
South Texas	1,190	957	+ 24	25,660,050	*8,733,050	+ 37
Texas Gulf Coast	408	326	+ 25	23,302,850	*27,093,750	
Texas Panhandle	199	209	— 5	8,824,300	7,289,700	+ 21
West Texas	812	389	+109	22,902,250	20,075,850	+ 14
West Central Texas	139	141	— 2	3,919,800	3,039,200	+ 29
Wyoming	35	15	+133	6,110,050	4,156,500	+ 47
Total United States	8,177	7,043	+ 16.1	399,348,900	342,700,136	+ 16.5

* Fields of Corpus Christi district, now included with South Texas, were shown in Texas Gulf Coast in 1936.

Demand Up Seven Percent

So far, official figures on total demand are available only for the first two months of this year. They indicated that the total demand for petroleum was running only 7.1 percent higher than in the similar period last year. March and April apparently brought a similar improvement over last year.

Thus it is indicated that crude production in the first four months this year should have shown an increase of less than 10 percent over the similar period last year.

Actually, however, the crude oil output in the first four months of this year was 16.5 percent greater than for the corresponding period last year. In this year's first four months, United States crude production totaled 399,348,900 barrels, compared with 342,700,136 barrels in the similar period last year.

Most Drilling Since 1926

In line with the exceptionally large production of crude oil this year, and tending to promote the excess of production, drilling has increased to the greatest proportions for over 10 years, exceeding even the 1929 record.

In April, this year, wells were completed in the United States at the average rate of 78.1 daily. That was the highest daily average since December, 1926, when the completions averaged 78.7 wells per day.

In the first four months of this year, completions in the United States totaled 8177 wells. That was 16.1 percent more than in the similar period of last year.

All Areas More Active

This gain in drilling resulted from increases in all but a few of the major districts of the United States. Drilling has been running twice as heavy as last year in Eastern Texas outside the East Texas field and in West Texas, while Kansas and New Mexico also have been favored drilling areas this year, with completions running around 50 percent above last year.

Crude Raise Held Off

The present situation in the oil industry, with production out of balance with demand, naturally works against any immediate raising of crude oil prices—a possibility that has been much discussed in recent weeks. The industry and the state conservation officials must face the responsibility of bringing about a better control of crude production if the hopes for higher crude prices are to have a sound foundation.

Well Shooting

WITH SPECIAL REFERENCE TO SECONDARY RECOVERY OPERATIONS

By HARRY M. RYDER
Ryder Scott Company, Petroleum Engineers

THE fundamental object of any oil producing operation conducted for commercial advantage is neither to produce the greatest possible number of barrels, nor necessarily to keep the cost to the lowest amount per barrel, but to produce the greatest profit from the operation.

In computing the actual amount of this profit, it is obvious that a dollar made the same year its development expense is incurred is worth more than if that dollar is made several years later. That is, except insofar as market prices may enter.

From the viewpoint of this brief lesson in economics, the shooting of oil and pressure wells becomes not a necessary evil to be performed with the least effort, thought and expense, but instead, an important part of the development activities to be considered in the light of its possible contribution to profits.

Importance of Shot Size

The necessity for shooting has been recognized for many years, and its practice in the Pennsylvania regions has been practically universal. Unfortunately, however, to figure a shot so that its results will yield the maximum in economic returns has been so difficult that the practice of semi-blindly selecting size and placement of shells has been almost as universal as the shooting itself. The development of secondary recovery methods, with the closer spacing of wells, and important control of pressures, and consequent need of much greater control of shooting has not to any great degree lessened this seeming guesswork. The reason for this, as we well know, lies in the difficulty of observing the exact effects of a shot, either on the sand itself or on the resulting production.

It is never possible to tell what difference would have resulted had a shot been different, and sand and other conditions change so much from point to point that to make direct comparisons based on the performance of differently shot wells has been of limited use. The widely varying shooting practices today more nearly coincide with the variations in the mental processes of the persons responsible than in the sand and operating variations the shooting is intended to assist and correct.

Need to Accumulate Data

It seems desirable, therefore, at this time to accumulate the pertinent work of a number of individuals and of laboratories and to attempt to organize, in some small degree, the resultant information. With this in view, the matter that follows attempts to be just that, an accumulation of the efforts and experiences of others, with the writer playing the part rather of editor or abstractor than that of an investigator presenting his original findings.

The purpose of a shot is to "get" more oil and to get it sooner. It can function solely through its ability to enlarge in the well the effective exposure of the pay sand face. It seems reasonable to suppose that the greater the violence of the explosion at any one point, the greater will be the effective enlargement at that point. The first question then becomes "What is the proper enlargement for the greatest economic benefit?" Notice the use of the word "economic."

Effect of Shot

Various views are taken as to the physical effect of the shot on the sand. There is usually some actual enlargement of the mean diameter of the hole itself opposite the shot. Evidence of this is found in the material removed from the well after a shot, both by it and during the subsequent cleaning out. The size of this hole is not so large, however, as has often been opined. Some years ago we made a rough survey of a shot hole to satisfy our curiosity on this point. A 6¼-inch hole had been shot with 3½-inch shells. With the hole clean, a string was put on the sand line marking the bottom. Crushed limestone was then dropped in the well, a small known measure at a time. After each measure, the bailer was run and a new string put on the sand line. This was continued as far up the hole as we cared to go. The result, computed as mean well diameters, is shown in Figure 1. We do not believe that the hole is of a circular section, nor can these measurements be accurate, but the actual conditions in the shot hole must be much as shown. The point is that the hole is not very large, and that the actual increase in diameter is very erratic. This increase in size cannot account for the extent of the beneficial effects of shooting. There must be, therefore, radial fracturing far beyond the dimensional limits of the hole itself. We have much evidence to corroborate this belief.

Some Fractures Vertical

The writer watched a pumping well 45 feet (at the surface) from a well being shot. A puff of gas occured at its casing head almost simultaneously with the discharge of the shot, and at the same time the pumping well began producing a full stream, and as soon as the tubing could be filled with the new fluid, considerable sand pumpings were pumped out.

We have evidence too that these fractures are, at least

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in part, vertical. On several occasions we filled with cement, without pressure, the shot hole opposite some very permeable sand only to find the water, later introduced under pressure, by-passing the cement and proceeding on its untrammeled way through the permeable strata we had attempted to seal. Fractures too small for the cement to fill would seem to have been the only possible available passages into the "open" sand.

Yuster reports that Ranney, in his mining work, has found fractures emanating as far as 40 feet from the shot hole.

It seems logical to believe, therefore, that not only does fracturing occur often far into the sand from the shot hole, but that the effectiveness of the shot is due in a large measure to this same fracturing. The increase of effective surface which may be exposed by a relatively small amount of fracturing is astounding. Incidentally, this viewpoint may well cause us to revise our accepted ideas of the extent of sand plugging in pressure wells due to a small amount of suspended matter in the water. Much wonder has been expressed that an old fashioned ground flood, with its sediment carrying water could ever work. We know that it often did, and here is a possible reason.

Defines "Effective Diameter"

In discussing shot holes it is now necessary to use the term "effective diameter," meaning of course the diameter of a hole whose effect would be equivalent to the irregularly fractured area a shot actually creates. In this sense we are not speaking wildly when we refer to effective diameters as great as 40 or 50 feet.

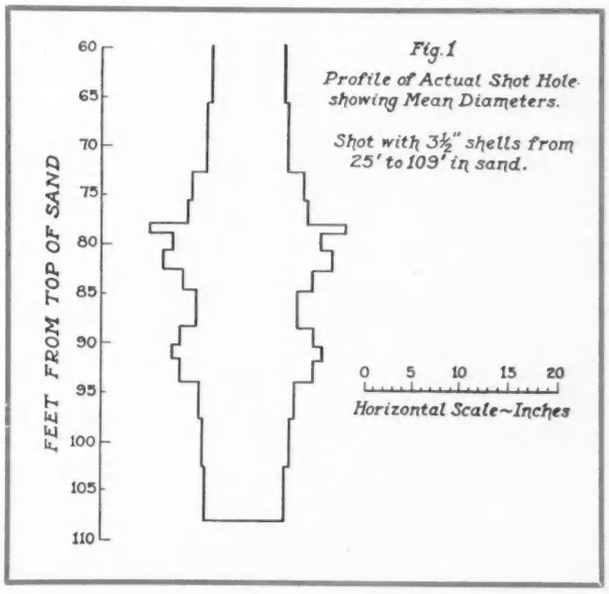


Fig. 1
Profile of Actual Shot Hole showing Mean Diameters.
Shot with 3½" shells from 25' to 109' in sand.

Oil is moved into producing wells in secondary recovery operations only by the assisting movement of air, gas, or water. This energizing medium in turn moves only by virtue of an existing pressure gradient, or pressure drop along the line of flow. The width of this current of fluid passing from the pressure well to the producing well is necessarily small as it leaves the pressure well, widening to a maximum somewhere between the two wells, and narrowing again as it approaches the producing well. The forward progress in feet per day is therefore least at the point of maximum width of flow, and the pressure gradient, or pressure drop per foot travelled, is least at this point. This area of low gradient constitutes one half or more of the pay sand area.

Role of Pressure Gradient

Also this pressure gradient is the primary source of our livelihood, since it, and it only, is responsible for getting the oil to the hole. Increasing this minimum gradient helps in two ways. First, it speeds up the recovery of oil, brings the money in faster, and, therefore, helps stop interest or helps increase dividends. Secondly, up to a certain limit, which is rarely reached in field practice, the greater the gradient, the more completely the oil is removed from the sand; that is, the greater the recovery per acre, and, therefore, the net profit on the operation in dollars. This latter fact has been developed here at State College under Dr. Yuster, and the evidence is so convincing as to leave no doubt in our opinion of this condition.

We shoot wells for the purpose of increasing this gradient and in this way to bring in more dollars and to bring them in sooner.

Formula for Effect

A very valuable paper by Muskat and Wyckoff in AIMME Technical Publication No. 507, 1933, discloses a mathematical formula from which we deduce certain effects of shot holes of varying effective diameters. For a water flooding 5-spot Yuster has reduced this formula to oil country terms as follows:

$$Q = \frac{.00154\, k\, h\, \Delta P}{\eta \left(\log_{10} \frac{D}{r_w} - .269\right)}$$

where

Q = barrels per day water input in pressure well.
k = sand effective permeability in millidarcies.
h = sand thickness in feet.
ΔP = Intake pressure.
η = viscosity of the water.
D = distance center to center from pressure to producing wells.
r_w = effective shot hole radius.

Since a condition involving oil, water and gas in varying quantities is very complicated, this formula is based on water only in the sand. It would be far better to include the oil and gas, but just now we cannot, so we assume this condition as a sufficiently close approximation for our purpose.

Uses 5-Spot Pattern

Curve sheet Figure 2 indicates the effects of varying shot hole effective diameters. In computing this, a 5-spot pattern, 314 feet between pressure wells has been considered, with 35 feet of pay sand of about .5 millidarcies effective permeability (possibly 5 millidarcies dry permeability), and 1000 pounds per square inch pressure at the intake well sand surface. The center to center distance from pressure well to producing well is 222 feet.

In this case, ignoring any mudding up of the pressure well due to drilling, the unshot 6¼-inch hole will take 10 barrels of water a day. As we see from the curve, the amount of water the well will take increases rapidly as the effective shot hole size increases, until with a 40-foot diameter effective shot hole the well takes almost 3½ times as much water as the unshot well.

Theory Strengthened

As shall be shown presently, these figures are in the

order of actual accomplishments in the field. In fact they are so close to actual experience as to lend a very strong argument to the theory of rather large effective shot hole diameters. This change in water flow necessarily affects the pressure gradient in the large territory central between the pressure and producing wells. Curve 2, Figure 2, will give an idea of just what happens to this gradient at the point midway between adjacent wells. From an unshot well gradient of about 1.3 pounds per square inch per foot, the gradient increases to 4.5 pounds where the effective shot hole diameter is 40 feet.

Where other conditions are constant, this gradient will vary directly with the applied pressure, so that it might well be 9 pounds per square inch per foot where the pressure applied at the sand face is 2000 pounds, not an uncommon pressure in the Bradford field. It is interesting to note that this pressure gradient is within hitting distance of the gradients found in the State College laboratory to bring about the greatest practical oil recovery. We have, therefore, by shooting these wells met one of the conditions for best operation.

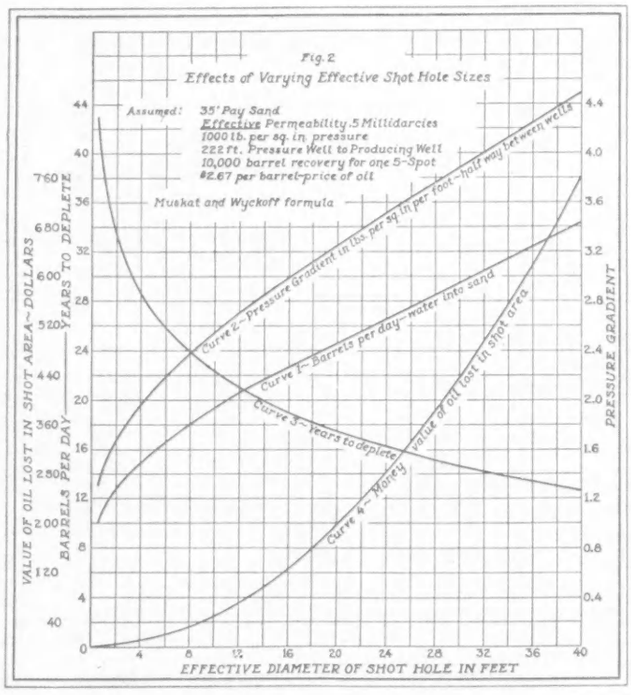


Fig. 2
Effects of Varying Effective Shot Hole Sizes
Assumed: 35' Pay Sand
Effective Permeability .5 Millidarcies
1000 lb. per sq. in. pressure
222 ft. Pressure Well to Producing Well
10,000 barrel recovery for one 5-Spot
$2.67 per barrel-price of oil
Muskat and Wyckoff formula
Curve 2—Pressure Gradient in lbs. per sq. in. per foot—half way between wells
Curve 1—Barrels per day water into sand
Curve 3—Years to deplete
Curve 4—Money value of oil lost in shot area
VALUE OF OIL LOST IN SHOT AREA—DOLLARS
YEARS TO DEPLETE
BARRELS PER DAY
PRESSURE GRADIENT
EFFECTIVE DIAMETER OF SHOT HOLE IN FEET

Can Pump More Water With Oil

The other is the time factor. According to one able Bradford producer, it is practicable to allow a producing well, during its life to pump 10 times as much water as oil. In the 5-spot here considered, the well should produce approximately 10,000 barrels of oil during its life. It may therefore produce 100,000 barrels of water. All this water must enter the intake wells, and in addition, enough must enter to fill probably 75 percent of the effective pore space. The total amount of water which must enter this 5-spot pattern will then be approximately 155,000 barrels during its life, one fourth representing one quarter of the total input in each of the four corner wells.

At the rate of 10 barrels a day, for the unshot well, this would require about 43 years, an impossible time. At the rate computed where the shot hole has an effective diameter of 40 feet the time would be about 12½ years, not far from a common condition. If the effective shot hole diameter were further increased or if the permeability were greater the time for depletion would be correspondingly decreased, and it often is. The fact that in practice the amount of water entering a well does not remain constant does not invalidate this argument. These figures can readily be adjusted to any actual conditions a producer may experience. The shape of the curve and the order of magnitude will not appreciably change.

What Happens to Shot Oil?

And now a contrary circumstance enters. Where an effective shot hole is 40 feet in diameter, there must be actual fractures radiating more than 20 feet from the center of the hole. What happens to the oil originally in the part of the hole actually cleared of sand is easy to figure, and does not amount to much. Just what happens to the oil in the remaining part of the effective shot hole territory, that part in which the sand remains in place, but is within the fractured area, is open to conjecture. It moves with too great difficulty for much of it to be forced beyond this region by the shot. The water likely gets behind some of it and shoves it on, but much of it may well be trapped by water entering the sand body near the outer edge of the fractures. Oil is moved against water with so great difficulty that it is wholly improbable in this case that any appreciable amount of oil, once it is behind water, is ever forced into the producing well.

Cost of "Lost" Oil

An assumption has been made therefore that all oil within the effective shot hole diameter is permanently lost. As there is no present verifying evidence for this assumption, it must be taken for what it may be worth.

On this basis, the amount of money represented by this "lost" oil has been computed on the current market of $2.67 a barrel, and with a recovery factor of 5000 barrels per acre. The rather startling results are shown in Curve 4, Figure 2. Our 40-foot effective shot hole which has treated us so well in terms of time and quantity of oil is now costing us over $750 in lost oil for each 5-spot pattern, if our assumptions are reasonable. Even though we lose only half the oil, the amount we pay the shooter becomes only a part of the cost of the luxury of our shot holes.

Here also is a clue as to why close well spacing may, and has, resulted in an actual decrease in the recovery of oil per acre. The proper effective size for a shot hole for best economic operation becomes a balance to be worked out for each individual case. The means are here presented. No generalized results can be of any value.

Many Factors Enter

If, in view of all this, a curve could be plotted between quarts of nitroglycerin per foot of hole and effective shot hole diameter, the story would here be complete. This, as must be manifest, is unfortunately impossible. Again many factors enter. Aside from the presence and nature of liquid which may be in the hole, amount and type of tamping, detonation rate of the nitroglycerin, and condition of this type which presumably may be under control, we have the varying physical characteristics of the sand it-

self, compressive strength, elasticity, et cetera, often the presence of shale or mica stratification, varying amounts of liquid in the sand body, varying degrees of rigidity of the overburden, and other conditions which are to a considerable extent unknown, and all of which may have considerable effect on the extent of fracturing. And, as if this were not enough, we can not go down and see what happened.

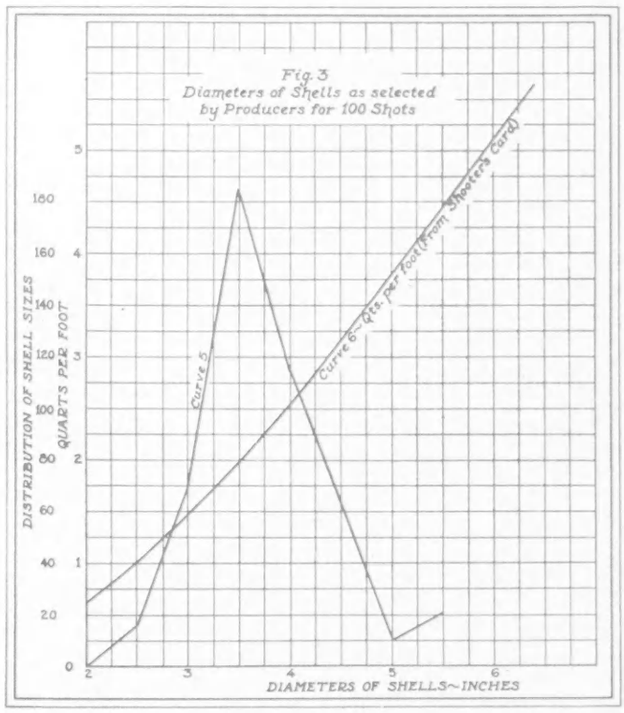
Extended Analysis Needed

Our only hope of tying these factors together lies in an extended analysis of a large number, perhaps thousands of actual shots under varying conditions with the hope that from it may come a reasonable rule from which good average results might be expected. It is, unfortunatey, beyond the possibility of this paper to report on any such analysis. The proposition is therefore respectfully dedicated to the research enthusiasm of the Pennsylvania State College with the hope that it may see fit to carry on.

In spite of the impossibility of presenting a statistical analysis of this magnitude at this time, it does seem desirable to present information which will give an idea of the manner in which the shooting problem is being met in the field. This information was graciously furnished by a number of successful producers and we acknowledge our gratitude for their cooperative spirit.

Current Shooting Practice

A birdseye view of current shooting practice so far as strength of shots is concerned, can perhaps best be shown in the form of curves in Figure 3. A large glycerin company serving many of the best accounts has been kind enough to furnish a list of the quantities of the various diameters of shells used in approximately 100 shots selected at random. 479-20 quart shells are included. Curve 5 indicates the choices of shell diameters made by the producers. It is interesting that the information furnished directly by the producers fits this distribution of shell sizes very well. Far more 3½-inch diameter shells are used than any other size, and the 3½-inch and 4-inch shells together constitute about two-thirds of the total. To make the curve of greatest value, 4¼-inch shells have been included with the 4½-inch size and 4¾-inch have been combined with the 5-inch. The upturn of the curve for the 5½-inch size is interesting and represents the practice of an important minority of prominent operators. As the intensity of the explosive force may best be expressed in terms of quarts of nitroglycerin per linear foot of hole, Curve 6 has been included. The data for this has been taken from the shell size charts furnished by the glycerin companies, and includes end corrections for the shells themselves. Please do not try to check it on a strict volume basis.



How Much Nitro They Use

Most producers shoot 2 to 2½ quarts of nitroglycerin per foot. Some shoot as low as one quart, some as high as 4½ quarts—all this in the Bradford sand. Again, this selection cannot be attributed primarily to the varying sand conditions so much as to varying ideas of individuals. Neighboring properties, where sand conditions do not vary greatly are frequently shot quite differently.

Although we are fundamentally interested in what comes from the producing wells, the amount of water entering the pressure wells is just as important. Since it is far easier to study the effects of shooting on the performance of intake wells, we shall confine this portion of the study to such. Let us consider this condition and to what extent it is being met in actual cases, and in particular the effect of shooting in this regard.

Where 35 feet of pay sand are to be found, it is very important that pressure wells average 50 barrels to 75 barrels or more of water daily for the first year if the flooding time is not to be extended unduly, and if efficient pressure gradients are to be maintained. Under certain circumstances much greater rates might be desirable

Shot Results Vary

Four pressure wells were not shot, but completed as the drill left them. These averaged 10.5 barrels of water a day when first turned on, varying individually from 9 to 14.5 barrels. One of these, over an extended period of time averaged less than one barrel a day. Two of the others shot two years later with 2 quarts per foot averaged 33 barrels a day just after shooting without surface pressure, and more than seven years later averaged 35 barrels a day under pressure. We must shoot to obtain the desired results. But how?

In one case on our own property we shot pressure wells in rather uniform sand, some with 2½-inch, some with 3-inch and some with 3½-inch shells. After 6 months these wells averaged 11 barrels a day, 22 barrels a day, and 47 barrels a day respectively. Another operator also in reasonably uniform

sand shot pressure wells, some with 40-quart, some with 60-quart and some with 80-quart shots. He reports that the wells shot with 60 quarts took almost twice as much water as those shot with 40 quarts, and the wells shot with 80 quarts took about 2½ times as much. In another part of the field, adjacent pressure wells were shot, one with 40 quarts and the other with 80 quarts. After a year the latter well takes three times as much water as the former, about 35 barrels a day in 20 feet of sand. The 80-quart shot was in 5½-inch shells. Another operator using 3-inch and 3½-inch shells states that his pressure wells take about one barrel of water a day per foot of sand after a year. Two other operators, producing rather generally all over the Bradford field use 3½-inch and 3-inch to 4-inch shells, respectively, wherever possible. The first few months' average in these cases is reported as 90 barrels a day and 66 barrels a day.

Permeability Considered

In another case, this time in the Richberg territory, a well was first drilled through the upper, relatively permeable sand and not shot. After six months it took not much over 20 barrels of water a day. Later it was drilled through the lower sand of much lower permeability, and the lower sand shot 2½ quarts per foot. Six months later the two sands were taking more than 50 barrels a day.

On a Bradford field property, a well with 28 feet of sand was shot with 4½-inch shells and after a of sand was shot with 4½-inch shells and after a year was taking 26 barrels a day. One location away a well with about 20 feet of sand, shot with 5-inch shells, was taking 54 barrels a day after a year. About 1200 feet from these, a third well with 20 feet of sand, shot with 5-inch shells was taking, after a year, 128 barrels a day, all of the above under the same pressure. This latter well is in a region of much higher permeability than the other two. Since, under otherwise similar conditions, the amount of water a well will take is proportional to its permeability, to properly space, shoot and apply pressure to a well, this factor must be known. If it had been so desired, it is probable that the situation here might have been made much more uniform in operation had corrective shooting been practiced.

Value of Low Permeability Sand

We were fortunate in being able to obtain from one producer the information necessary to enable us to plot the curves shown in Figure 4, offering direct evidence of the effect of permeability on the amount of water a well will take. These data were obtained on properties in the Bradford field which, as the permeability figures indicate, include quite a wide variation in sand conditions. It seems remarkable that the points should fall as closely to a smooth curve as they do. The curves indicate that above 10 millidarcies, dry permeability, the water flow will increase somewhat more rapidly than the permeability increase. Below that figure the variation in water flow will be somewhat less than the variation in permeability, a condition which probably makes it possible for us to profitably operate very low permeability sands.

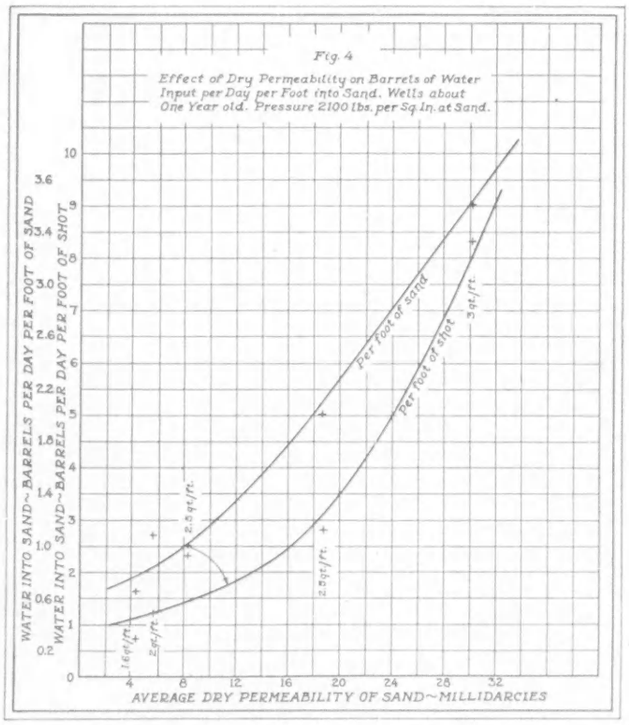


Fig. 4
Effect of Dry Permeability on Barrels of Water Input per Day per Foot into Sand. Wells about One Year old. Pressure 2100 lbs. per Sq. In. at Sand.
WATER INTO SAND—BARRELS PER DAY PER FOOT OF SAND
WATER INTO SAND—BARRELS PER DAY PER FOOT OF SHOT
Per Foot of Sand
Per Foot of Shot
1.6 sq./ft.
2.5 sq./ft.
3 sq./ft.
AVERAGE DRY PERMEABILITY OF SAND—MILLIDARCIES

Another operator has generously furnished data from which it seems actually possible to form an idea of the relationship between the strength of shots and the resulting water flow, other conditions again being fairly constant. This, again, happens to be Richberg sand. In Figure 5 is plotted the result of this analysis. While the variation from the mean is greater than might be desired, there is a very definite trend shown of this relationship. Viewpoints may reasonably vary as to just how to draw in the curve, but the one as shown seems to be as good as any. Please notice that this curve indicates, within the limits shown, that the flow of water is in almost exact proportion to the strength of the shot. If this law should hold generally true, it would be of very great value in planning a flooding program. An effort to plot a similar curve for the Bradford field resulted in a shot gun pattern through which no curve could possibly be drawn, this owing, we believe, to the variable permeability conditions involved.

Radial Fracturing Desired

In the shooting of wells, it seems obvious that we are interested in developing radial fracturing rather than clear volume in the shot hole proper. We are told that rapid combustion of the explosive will tend to produce the opposite effect, and that if the rate of combustion is somewhat lowered, greater radial fracturing and less caving will result. This rate is, fortunately, to some extent under the control of the nitroglycerin maker.

It seems worth while to record here a comparison test made by an operator in the Bradford field, between ordinary nitroglycerin and solidified. Two wells were similarly shot with each. Where liquid

glycerin was used, neither well caved. Where solidified was used each well required 6 days to clean out. On the other hand, the average barrels of water taken per day per foot of sand for the liquid glycerin shot wells for the first month was 2.14 as compared with 1.55 barrels for the solidified shot wells. Obviously, in this case the cleaning out time is no measure of the effectiveness of the shot.

Sand Tamping Advocated

Sand tamping is being advocated as a means of increasing the effectiveness of a given shot, or of decreasing the amount of nitroglycerin necessary for a given effect. Much evidence from a number of fields has been presented to support this viewpoint. In the Bradford field, little sand tamping has been done to date. The cost of the time bombs and sand, and the extra work involved cause most of us to want to be shown. An operator in the Clarendon field is satisfied from his own experience that sand tamping, even with less nitroglycerin has approximately trebbled his production rate. We have tried a few sand tamped shots, but the indications, while definitely favorable, are too meager at this time to attempt conclusions. We feel they are worth investigating further.

Since the favorable results of the shooting of wells is obtained by virtue of the sand fracturing produced, it seems reasonable that a knowledge of the crushing strength of sand, and its variations from point to point would be of value in any study of shooting. In an effort to contribute some preliminary knowledge along this line, the state college laboratories kindly made some crushing strength tests on core pieces of sand of widely varying permeabilities, but otherwise apparently similar. The crushing strength varied from 10,200 pounds per square inch to 14,800 pounds, but showed no relation whatever between strength and permeability. It is hoped that further study along this line will be possible and that it may aid in the problem of making shooting more nearly an exact procedure.

Can "Cash in" on Knowledge

The status of our knowledge of sand, repressuring phenomena, and shooting has arrived at the point where we can specifically "cash in" on this knowledge. It is definitely known that the water a pressure well will take is proportional to its effective permeability, and roughly to its dry permeability. It is indicated, too, that for any given sand the amount of water a well will take is roughly proportional to the strength of the shot as measured in quarts of nitroglycerin per foot. We all desire to have a flood front move forward as nearly vertically from top to bottom of the sand as possible, for in this way is the most oil produced per unit of driving fluid used. We know, too, that we have in many cases pay sands varying greatly in permeability from top to bottom of the sand.

If then we were to adjust the strength of the shot from point to point through the sand within practical limits, making it inversely proportional to the permeability at each point, we should in some measure bring our flood front toward the vertical position. Here, of course, the possible variation in the susceptibility of the sand to fracture under a given shock should be considered. But even so, we can do a lot to correct by wise shooting, the tendency of the flood front to become irregular. And it is being done. This may, it is true, cause a slowing up, to some extent of the flood movement through the more permeable sand, but this is the price we pay for the later saving of driving fluid in and out of the wells without moving oil.

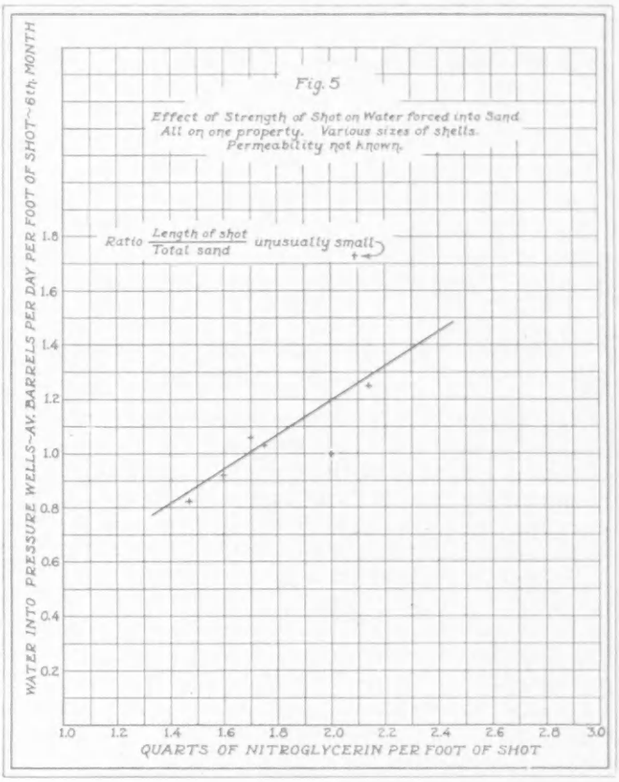


Fig. 5
Effect of Strength of Shot on Water forced into Sand
All on one property. Various sizes of shells.
Permeability not known.
Ratio Length of shot / Total sand unusually small
WATER INTO PRESSURE WELLS—AV. BARRELS PER DAY PER FOOT OF SHOT—6th MONTH
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0
QUARTS OF NITROGLYCERIN PER FOOT OF SHOT

Should Predetermine Shots

In the foregoing, an attempt has been made to show that with sufficient information and study, it should be possible for the art of shooting to approach much more nearly to being an exact science, and therefore to serve the producer far more efficiently than is now usually possible. Just because we cannot see the shot hole does not seem to be a valid reason why we should not be able to predetermine the desired result and then with confidence be able to specifiy the shot necessary to do the particular job.

The glaring weakness of the technical information here offered lies in its being based in most cases on so pitifully few actual shots. Statistical information in order to be of real use must have as a foundation a large accumulation of competent data. This we do not have.

RELATIONSHIP OF SUPPLY AND DEMAND INFLUENCES

Spacing

By S. F. SHAW, Consulting Engineer, San Antonio, Texas

WELL-SPACING has received considerable attention during the past 15 years. It is receiving increased attention at the present time. In the light of experience gained during these 15 years, it would seem that the spacing of wells is primarily an economic problem, rather than one of conservation. The drilling of wells is essentially one of carrying on an operation to make a profit, whether it be done by large companies, small companies, or individuals. The thought of profit cannot be dissociated from the enterprise.

During the late war, and for the succeeding 10 years, there was considerable doubt as to whether the reserves of oil in the United States would supply the demand for more than a few years [1] [2] [3] [4]. Geologists, engineers, and executives accepted the hypothesis that reserves were declining, and yet within a few years there were discovered the greatest oil reserves ever exploited in the United States.

In 1926, because of the uncertainty of future oil discoveries, it became a question as to whether spacing in such fields as Tonkawa, Seminole, etc., was sufficiently dense to maintain the current demand. Had East Texas, the largest field ever discovered, not been found in 1930, the question of close spacing might yet be strongly advocated. In other words, one field, which might never have been found, has changed the entire outlook. Will the cycle be repeated? Who knows but that there may be another period of oil shortage perhaps followed by another surge of discoveries, or possibly followed by gradual exhaustion of reserves. These events, depending on what they may be, have an important bearing on the optimum spacing of wells.

During the period 1926-1930, various arguments were advanced in support of close spacing as a means of recovering the maximum quantity of oil, and of showing the maximum profit.[5] This was before the price of oil was so drastically reduced. At present many operators, engineers and lawyers seem to favor wide spacing on the assumption that it contributes to higher profits and even to greater ultimate recovery.[6] Perhaps there are conditions that make either hypothesis appear sound, depending upon the conditions existing when the problem is being considered.

In times of large demand and a high price for oil products, coupled with uncertainty as to the supply, operations that are conducted with reasonable care are quite profitable, and at such times it is only natural that the operator desires to produce as quickly as possible all the oil that can be extracted, and turn his assets into cash. This was the case in 1926-1930, and seems likely to be the case again in the course of time. During periods when a high price has prevailed, it has been claimed that close spacing becomes more profitable,[7] and the profit to be gained per acre is greater than that shown by wide spacing.

Conditions are different from those of 1926. There is an over-supply of oil, and the price is considerably lower. The depth from which the oil is produced is becoming greater. Development costs have become a great factor in the cost of producing oil. Lifting costs at these greater depths tend to increase unless higher efficiency can be introduced to compensate for the increased depth. Consequently, at such a time, there is wide agitation for wider spacing and slower recovery. Looking at the question from the standpoint of the present moment, it would seem that wider spacing is the expedient method of procedure for the time being. Will we view the matter in the same light when the price of oil becomes higher and justifies more rapid recovery and quicker financial returns?

The relation of well-spacing to price of oil, to recovery, and to ultimate profit is complicated. This complication enters into the question of spacing to such an extent that it has a decided bearing on the policy that is to be pursued.

Relation of Spacing to Price of Oil

When the price of oil is high, which ordinarily means that the demand is equal to, or greater than, the supply, there is the urge to produce as much oil as is profitable to produce. Under such circumstances, when a field is newly discovered, there is the desire to perforate the reservoir with as many outlets for the oil as is profitable and permissible under the regulations that apply to the drilling of wells. If the wells are produced at maximum capacity, as would usually be the case under these conditions, it is only to be expected that the reservoir pressures will decline more rapidly than if produced at a lower rate, but the accumulative monthly production is generally increased.

As regards the influence of price of oil on well-spacing, the following comment is recently noted regarding an eastern oil field.[8]

> "The distance between wells is a matter of good judgment, and could well be closer where

# of Wells

AS FIELD OPERATIONS ARE CONDUCTED FOR A PROFIT

development costs are low, or where the price of crude is high. It must, of course, be closer in tight sand territory than in more permeable sections."

When conditions are such that a very low price prevails—that is, when the supply greatly exceeds the demand—it would seem inadvisable to produce oil at the maximum rate, since this only tends to aggravate the situation and to further depress the price of the product. It would appear logical to restrict production under such circumstances until there is some degree of balance between supply and demand. Restriction of production in the wells already operating would seem to be the first move to improve the price situation, and this is being done now in the principal oil producing states. This action would logically be followed by reducing the density of well-spacing, that is, to space the wells farther apart, if such further measure were necessary, and if this did not remedy the price situation within a reasonable time, it would seem logical to reduce the amount of drilling and exploration work being done. These various moves could not be carried out with the degree of precision that would be satisfactory to all concerned, because it would be impossible to state even approximately what the demand would be at some time in the future, or what would be the chances of discovery in all, or even in any one area, of the United States.

From past events in the history of oil developments, it would appear that the price of oil can be greatly affected by the density of well-spacing. If the spacing is close, especially in deep, high-pressure fields, oil is produced rapidly, and if several fields are discovered simultaneously, the spacing density should be low, in order to prevent an over-supply and consequently a low price for oil.

If few fields are found during a given period and if the demand exceeds the supply, it would appear sensible to adopt a close-spacing program in order to meet the demand, inasmuch as the price of oil is not likely to be undully depressed under such circumstances by this procedure. This measure would also tend to hold the price from mounting to an excessive point which could easily result in turning to substitutes for some of the oil products.

Relation of Spacing to Recovery of Oil

Until recently, the conclusion appeared to be generally accepted that closer spacing of wells results in higher ultimate recovery[7 9 10]. Of late, however, there has been a disposition on the part of some to question the accuracy of this conclusion[6 11]. Early observations, leading to the belief that greater density of spacing meant higher recovery, were based to a considerable extent on studies made in relatively shallow sands, also in sands of low porosity and low permeability. Based on a wide study of producing conditions, Cutler formulated the hypothesis[12] that "The recovery from wells of equal size producing under similar conditions in the same pool is proportional to the average distance that the oil moves to get to the well."

Practically all the fields so far exploited and carried to any considerable degree of depletion appear to indicate that close spacing results in high recovery. Comparisons have been made between sections of a single field, and between fields situated close together in which the same sand was drilled, and so far the results appear to point toward the same conclusion. However, various fields are now being exploited with wide spacing, and after these fields have been exhausted, or nearly exhausted, perhaps more definite comparisons can be made between the two methods of spacing.

The conditions under which oil is being extracted at the present time are considerably different from those under which former extraction was being made. As a rule, the new sands being exploited are deeper and under greater pressure than those of earlier fields, and this feature has a large bearing on the percentage of recovery that can be expected in a given field. Extensive deposits of oil have been discovered in porous limestone in which the permeability is high, and in which the flow into the well meets with little resistance. Moreover, steps are being taken at present to adopt methods that reduce impedence into the wells, such as enlarging the bore hole where it penetrates the sand, by acidizing, and by shooting.

Other methods of extraction, such as gas-drive, pressure maintenance, and water flooding, are now being employed that may make for larger recoveries than formerly. Methods are gradually being involved that reduce the cost of production, and, therefore, extend the life of the field beyond the usual time for abandonment. The use of gas-lift has changed operating methods greatly, and after this method becomes better understood, much more may be accomplished than has been the case in the past. The application of gas-lift has been thought by many as applicable only to wells in which large production is desired, but it is becoming evident that gas-lift can be employed advantageously in small wells, or in large wells where the production is greatly restricted through proration schedules. In many ways, the latter field is more favorable to the long use of the

Close Spacing or Wide Spacing

since relationship of price is more important than

Close Spacing: VS.

WHEN high crude prices prevail, which usually mean demand is as great as supply, there is a desire to produce at maximum capacity and ordinary reservoirs are perforated with as many oil outlets as is profitable and permissible. Under such conditions, close spacing becomes more profitable, and aids in meeting consumption.

gas-lift than any other condition under which this method is employed.[13] Centrifugal pumps are being employed for lifting large volumes of fluid, in which the percentage of oil is low, and in wells where the reservoir pressures are low,[14] and in which the quantity of oil possible to recover per day was formerly too small to make sucker-rod pumping profitable.

In some types of fields in which production of oil is yet being carried on that provided support for Cutler's formula, water-flooding is now being employed, which leads to different recovery percentages than those formerly applying. Both water-flooding and gas-drive are now being used in some of the actual fields which were used by Cutler on which to base his hypothesis. As a rule, however, drilling of additional wells is required for putting water-flooding successfully into effect, and in many gas-drive fields, additional input wells have been drilled to advantage.

In addition to the improved methods now being employed for extracting oil, it is not at all unlikely that mining operations in some form will be employed in the future for a final cleaning up of certain types of oil sands which have already been exploited through bore holes. This method, when used, may provide us with more accurate data on the actual recoveries that have been obtained, similar to the data that have been obtained from mining operations in the Pechelbron field, in Alsace-Lorraine, France, and in the Wietze field near Hanover, in Germany.

Daily rate of production, ultimate recovery, and well-spacing are governed to a large extent by several factors which are closely inter-related, and any change in one factor has a bearing on one or more of the other factors. Among these factors, there may be mentioned the following:

1. Depth of sand.
2. Reservoir pressure.
3. Permeability of the sand.
4. Character of the oil.
5. Method employed for lifting the oil.
6. Cost of development.

Depth of sand and reservoir pressure are closely related. As a rule, the deeper the sand, the higher is the initial reservoir pressure. Other factors being equal, the deeper the sand and higher the reservoir pressure, the greater will be the ultimate recovery. Under greater pressure, there is usually a greater quantity of gas dissolved in the oil, also at greater depth there exist higher temperatures. Pressure, quantity of formation gas, and temperature directly affect the facility with which the oil is propelled to the well. Other conditions remaining the same, it might be logical to state that with a given well-spacing, greater depth results in higher recovery.

In the Tonkawa and Seminole fields, with spacing of one well to 10 acres, with high sand permeability, the percentage of recovery in the Wilcox sand to the present time has been several times greater than that obtained from the Bartlesville sand in the Nowata area. In one area of 160 acres in Section 22-11-3 in the Oklahoma City field, which is fairly well segregated from surrounding territory from which it could drain oil from outside its own area, with initial reservoir pressure of about 2600 pounds, with close spacing of about 3 acres per well, and with rapid withdrawal, the recovery to January 1, 1937, was approximately 70 percent. However, under the economic conditions prevailing as to price of oil and cost of development and extraction at the time of this operation, it is a question whether the high recovery in Section 22 in the Oklahoma City field returned sufficient revenue to repay the cost of exploitation.

Permeability of the sand has an important bearing on the need for close spacing. In open, porous sand, with high degree of permeability, the need for close spacing is less than in a sand of low permeability, other factors remaining the same. The Bartlesville sand in Nowata County, Oklahoma, as a rule, is not highly permeable, judging from recovery percentages. Burbank is an area of a deeper sand similar, or equivalent, to the Bartlesville, and judging from the initial pressures found in the South Burbank field, it might be fair to assume that the pressures in the older Burbank field were in the neighborhood of 1100 to 1200 pounds, and yet recovery from the main Burbank area so far has been low, supposedly on the order of about 15 percent. This would seem to indicate low sand permeability. Spacing in the Burbank area was approximately 10 acres per well, and possibly considerably higher recovery would have been obtained had the spacing been on basis of 1 well to 5 acres, or even on basis of 1 well to 2½ acres.

The character of the oil has a noticeable effect on recovery, based on a given well-spacing. If the oil is of low gravity and is viscous, especially if the reservoir temperature is low, the flow into the well is sluggish, and large quantities of gas per barrel are often found necessary to drive the oil through the sand to the well bore, unless well-spacing be close.

Cost of development affects well-spacing. The deeper be the well and the harder the rock penetrated, the higher is the cost of development per barrel recovered. Excessively close spacing in high-cost

# of Wells—Which Should It Be?

recovery, neither method should be followed rigidly

VS.

Wide Spacing:

DURING periods of low oil prices, or when supply exceeds demand, it is the practice to restrict production of existing wells, logically followed by agitation for reduction of well spacing densities. In these times, it appears sensible to adopt a wide-spacing program, as it is not profitable to produce or drill at maximum rates.

wells would soon reach the point of diminishing returns.

Some comments on well-spacing may be of interest:

"Records in the Big Sinking field (Kentucky) show production has been determined largely by well-spacing. A lease with a spacing of 0.9 acre per well (depth 1150 feet) produced 17,500 barrels per acre, while an adjoining lease with 2.9 acres per well produced only 9934 barrels per acre. The character of the pay could not have contributed materially to the difference, and production curves indicate that the additional recovery per acre did not come from neighboring properties. It is concluded that the closer spacing permitted the productive strata of low permeability, which comprise most of the three pay zones of the pool, to act more efficiently in giving up their oil."[15]

"Closer well-spacing and secondary recovery methods applied to the Bellevue pool of northern Louisiana have brought this formerly abandoned field back into a strong position in the crude oil producing picture of this territory."[16]

On the other hand, a writer who advocates well-spacing of lower density writes:[17]

"Well-spacing and ultimate recovery are not as closely related as ordinarily believed, T. V. Moore stated. He added that it does not matter whether 50 or 100 wells are drilled since the field will be drained in either case. In the average water drive, gas-cap field, one well or 100 wells will eventually get the oil. He added that there are many exceptions to this rule, however."[17]

Well-spacing in various portions of the Nowata area in the Bartlesville sand has been on basis of one well to five acres or even less, and yet cores taken between wells indicate that only a small percentage of the oil has been recovered, and the oil extracted came from within a comparatively short distance of the well. Many wells have been abandoned in this area because of having exhausted the oil within drainage distance of the well, and yet within a distance of 150 feet from the well, cores have shown the sand to be heavily saturated. It would, therefore, seem as if closer spacing than one well to five acres in the Nowata area would have resulted in greater recovery than one well to 10 acres, and possibly one well to one or two acres would have yielded considerably more oil per acre.

The Tonkawa and Seminole fields are examples of high-recovery per acre-foot from Wilcox sand at depth of 4000 feet with spacing of one well to 10 acres. The spacing at Oklahoma City in the Wilcox sand at 6500 feet, on basis of one well to five acres or less, bids fair to win a high recovery.

Close spacing in the Powell and Wortham fields in the Woodbine sand was attended by a high recovery percentage, that in the Powell field being over 40,000 barrels per acre or more than 45 percent recovery, while that in the Wortham field was over 32,000 barrels per acre, or about 60 percent recovery.

Close spacing of 3½ acres per well in the Edwards limestone of the Luling field, Texas, has resulted in a recovery of slightly more than 31,000 barrels per acre.

Very close spacing in Gulf Coast fields, such as Hull, Humble, Sour Lake, Spindletop and West Columbia, have resulted in extraordinarily high recovery per acre, while close spacing in California fields,[10] such as Long Beach and Santa Fe Springs, has been followed by exceedingly high recovery.

When reviewing the high recoveries made in closely-spaced fields during past years, it seems difficult to escape the conclusion that close-spacing has been a large factor in high recoveries in the fields that have been exploited during this time.

Relation of Well-Spacing to Profits

Probably the most important factor to consider in regard to well-spacing is the relation of spacing to profits. Whatever be the other factors involved, unless a profit can be made, no development at all is justified. If the price remains too low to yield a profit under any given density of well-spacing, then drilling cannot be recommended. If the ultimate recovery be as high as 100 percent, unless a profit can be shown, it would be very difficult to induce anyone to invest his money in such an undertaking. There must be a proper balance between the price of oil, the recovery of oil, and the cost of production, to warrant the exploitation of any given field. Many oil sands have been discovered where conditions were such that the recovery, although it might be at 100 percent, would not return a profit, and operations were discontiued.

The writer believes that if all wells could be produced at close to maximum capacity, the major portion of the oil recovered would be lifted at a lower cost than if the oil were produced at a much lower rate of production. The overhead costs themselves, which as a rule are closely guarded, are much reduced when producing at a high rate. This is similar to the operation of a mine when operating at a high rate, where costs per ton are much reduced from the costs prevailing when the production is at a low

rate. Costs of mining have been systematized over a period of a sufficient number of years to bring out these facts.

Owing to the secrecy with which the costs of producing oil are held, it is difficult to compare costs in different fields, or even in the same field between different companies, but such examples as actually come before the investigator indicate a very high cost of overhead, including such items as taxes, exploration, lease rentals, supply department, main office salaries, etc., and if the volume of production is reduced to a low point, this overhead per barrel can become a discouragingly large percentage of the total costs.

The principal expense in extracting oil is the money spent on development, particularly in deep fields, and this development expense must be incurred before the wells can begin production. With increasing depth, the cost of development increases in greater ratio than the actual depth. Consequently the ultimate recovery must be greater in a deep well, or the initial expenditure must be returned in a shorter time, if as much profit is to be made as in a shallow well.

When drilling expense is a large item, such as is necessary in many a deep field, delay in return of capital is a serious matter[18] and it seems to the writer that in the course of time, greater attention must be paid to this phase of oil production than has been the case in the past. Development expenditures are much greater in the exploitation of deep oil fields than in the ordinary metal-mining program, in that the full development of a given well must be met before any revenue can be obtained, whereas in metal-mining operations the development can proceed in the degree that the operator wishes to exploit the property.

During periods of low price for oil, or in times when there is an excess in supply over demand, it would appear logical to adopt a wide-spacing program, so far as possible to carry it out. It might, however, be well to have in mind a possible closer spacing in the same area if the price should ever justify same. Since there is considerable excess in supply over demand, it seems logical at this time to adopt wide-spacing where the area being exploited can be adapted to this program.

Drilling of wells continues in East Texas. Entire leases of considerable extent are being drilled up with close-spacing, although during previous years under similar circumstances it was thought unnecessary to drill more than the line wells in a large lease. This increased drilling does not afford any greater outlet for the East Texas field; it actually results in a lower allowable per well per day. In other words, much capital is being expended without any hope for the present of gaining anything in the way of an increased allowable for the field as a whole. This procedure would seem to be serious economic waste. It might be argued that higher ultimate recovery can be expected, but this is not at all certain, since the wells are not being produced in a way to take advantage of the greater spacing density. This procedure of close-spacing, combined with slow withdrawals, can easily create a false impression as to reserves, and might lead to a shortage of oil before it becomes evident that such is taking place.

The large pools being produced under supposedly severe restrictions are being depleted, and perhaps the rate of depletion is greater than is supposed. Too much importance is being attached to the slight rate of pressure decline in such pools. It is conceivable that pools with active water drive can be produced so slowly as to extract all the recoverable reserves without causing any decline whatsoever in pressure. If dependence is being placed on pressure decline to denote when such a field is depleted, we would never discover that such was taking place until the field was practically exhausted.

On the assumption that wide spacing is more profitable in periods of low price and over-supply, and less profitable in periods of high price and under-supply, it would follow that neither method should be rigidly followed, consequently it might be advisable to allow considerable latitude in action in interpreting future events. Is it possible, or practicable, to space wells more distantly in time of low price, and then fill in the space with more wells if, and when, the price for oil advances sufficiently to justify such action? And if wells are spaced closely during periods of large demand and high price, would it be possible to arrange production schedules such that alternate wells, for example, be closed down, and one-half as many wells be produced during a period when prices of oil are low?

It would appear as if the operator would do well to start his operations with a view to the future as well as to the present. Development programs should be such that minimum modification in practice would be necessary in order to take advantage of changes in price, in changes in demand for oil, and in introduction of new methods of production.

Conclusions

The conclusions reached by the writer are:

1. Close-spacing, combined with rapid withdrawals, result in greater ultimate recovery, and in lower production costs per barrel.

2. However, the relation between price of oil, profits, and well-spacing is more important than ultimate recovery, therefore, density of well-spacing should be governed to a greater extent by the relation between supply and demand, rather than by considerations as to ultimate recovery.

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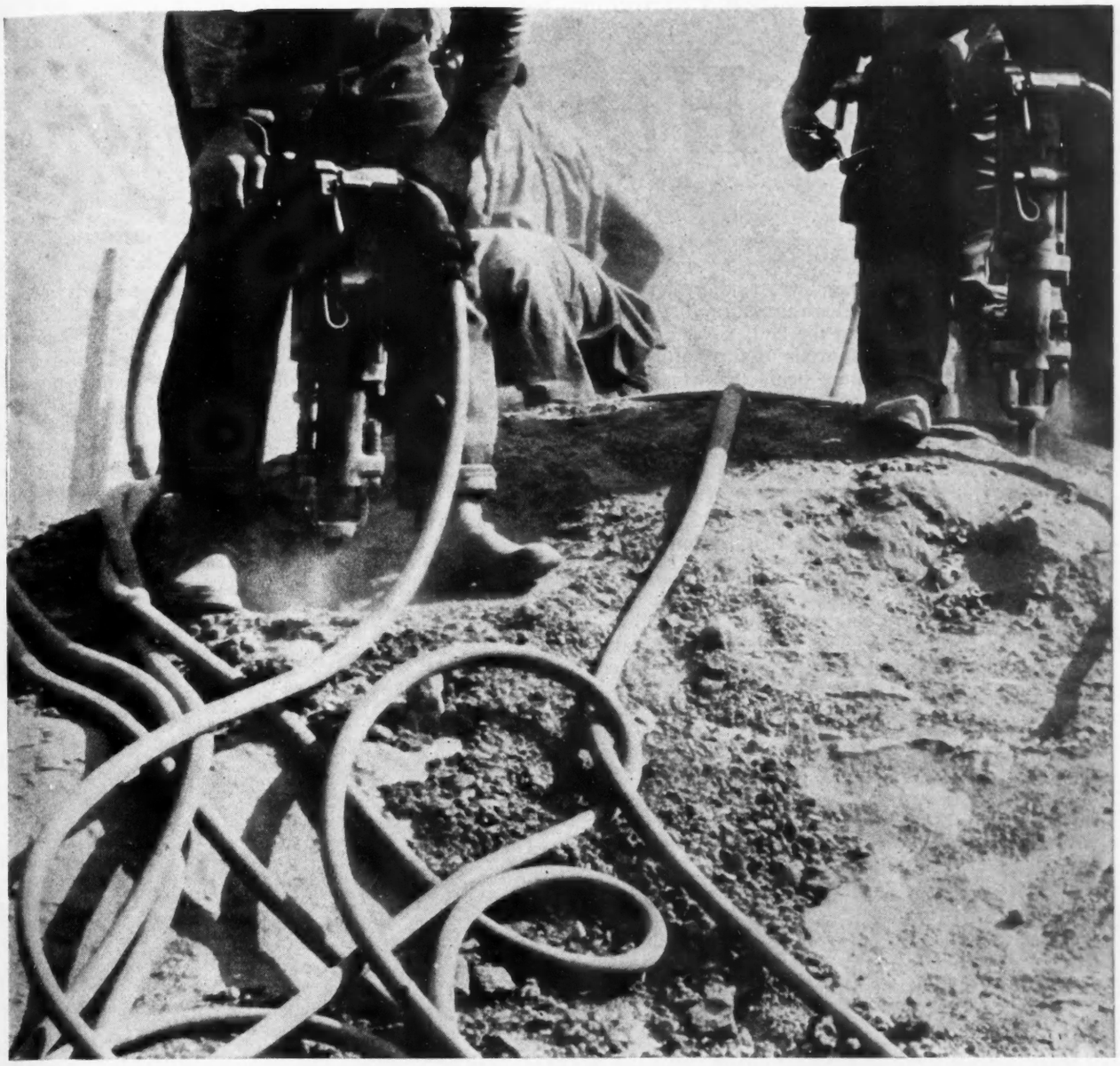

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CONTROL SYSTEMS FOR

High-Pressure

DURING the last several years, there have been a considerable number of high-pressure distillate wells brought into production in the Gulf Coast. It has been known for some time that wells of this nature could be made to produce, but there being no demand for the gas produced on these necessarily high gas-oil ratio wells, they were not drilled. Recent developments have allowed a considerable quantity of this gas to be used. In several instances further exploration on known structures has required gas for drilling operations.

Dickinson-Gillock Installation

The Dickinson and Gillock fields offer an excellent example of the possibilities involved in the use of modern high-pressure, highly flexible controlling systems for distillate wells. This field, being not far from gas consumption territory, along with modern trend of gas polymerization in refining practice, finds a good market. One pipe line, and its supplying gas wells, is that one operated by Pan American Refining Company, which supplies gas to the Pan American refinery at Texas City. At present there are three high-pressure distillate wells connected into two well-control systems supplying this pipe line. One of these wells is Pan American Production Company's Craig 2, in the Gillock field. The other two wells are owned by Stanolind Oil & Gas Company, and are on the state leases in Dickinson Bayou. The control systems on all these wells are essentially the same, and Pan American Production Company's Craig 2 will be taken as an example of the equipment used in this field. The tubing pressure of these wells is in the neighborhood of 3200 pounds per square inch. The open flow capacity has been rated at somewhat better than 100 million cubic feet per day. Since this control system is to supply gas to a refinery, and since, by the very nature of the market, a fluctuating demand is to be placed on this well, it can be seen that a highly flexible control system is necessary. This type of system is illustrated in the accompany photographs.

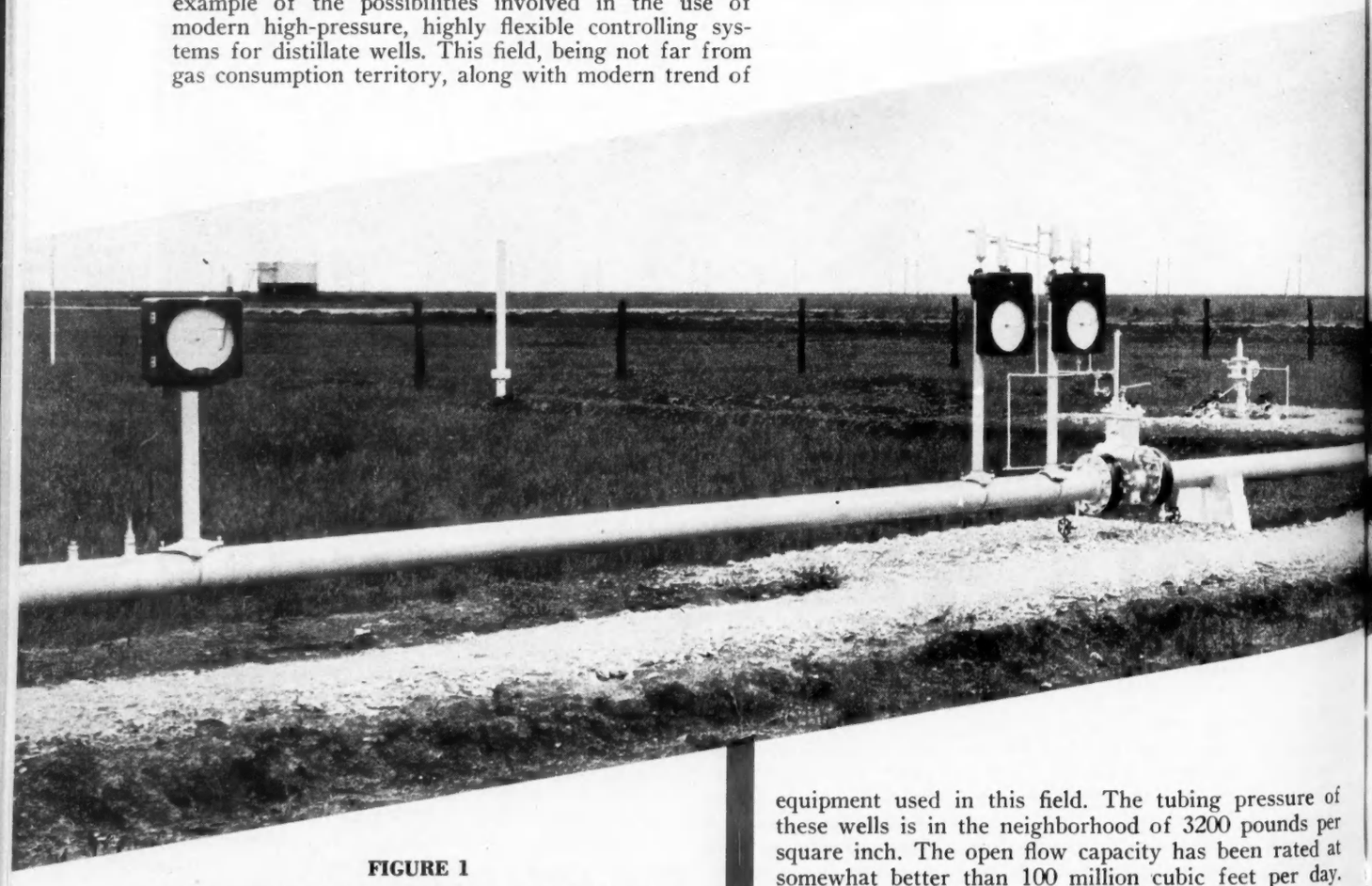


FIGURE 1

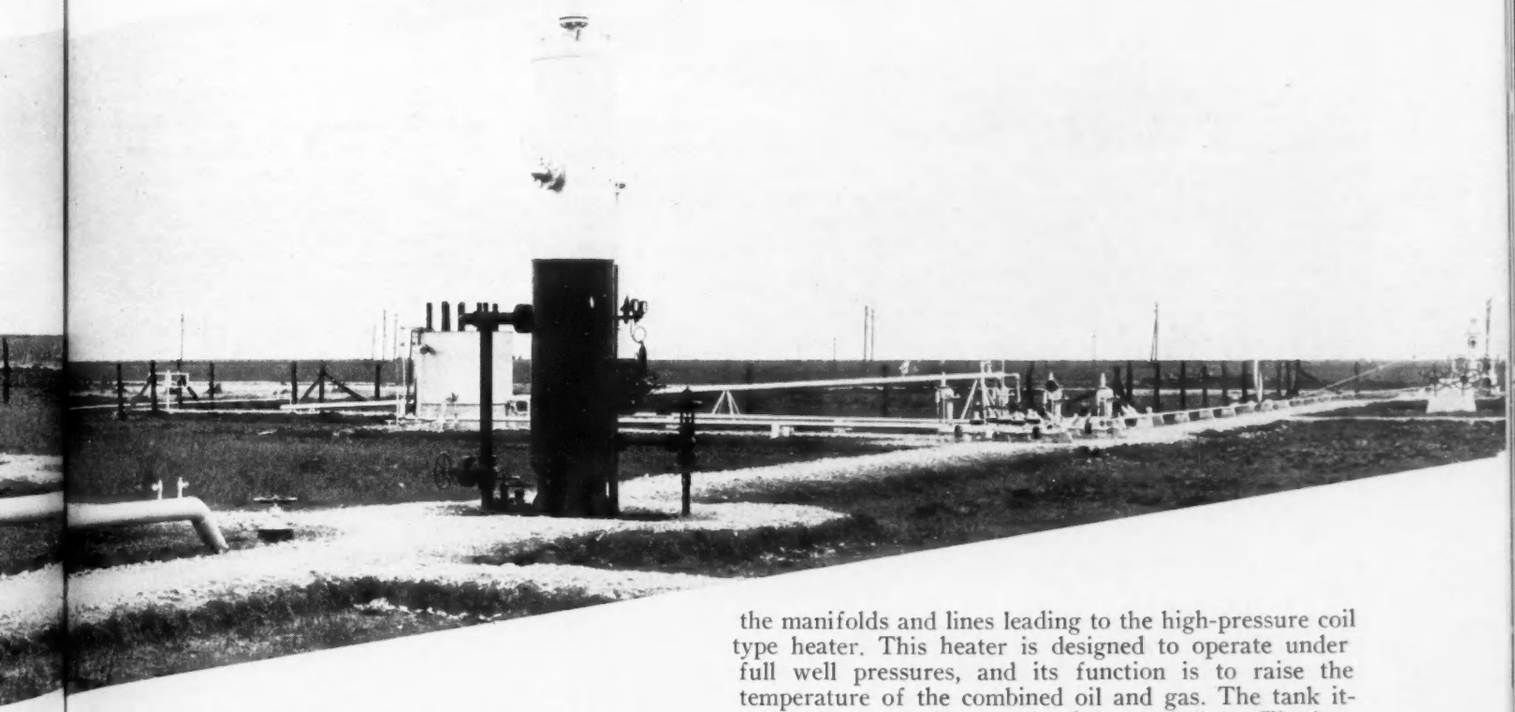
A general view of the installation on Pan American Production Company's Craig 2. At the far right (opposite page) is the well, the flow from which is to the left in the photograph through the heater (behind separator), through the separator and then the meter run.

Figure 1 shows a general view of the system. In the

Distillate Wells

Presented before the Gulf Coast chapter of the American Petroleum Institute, Division of Production, Houston, April 26, 1937.

By M. N. AITKEN,
Maintenance Engineering Corporation



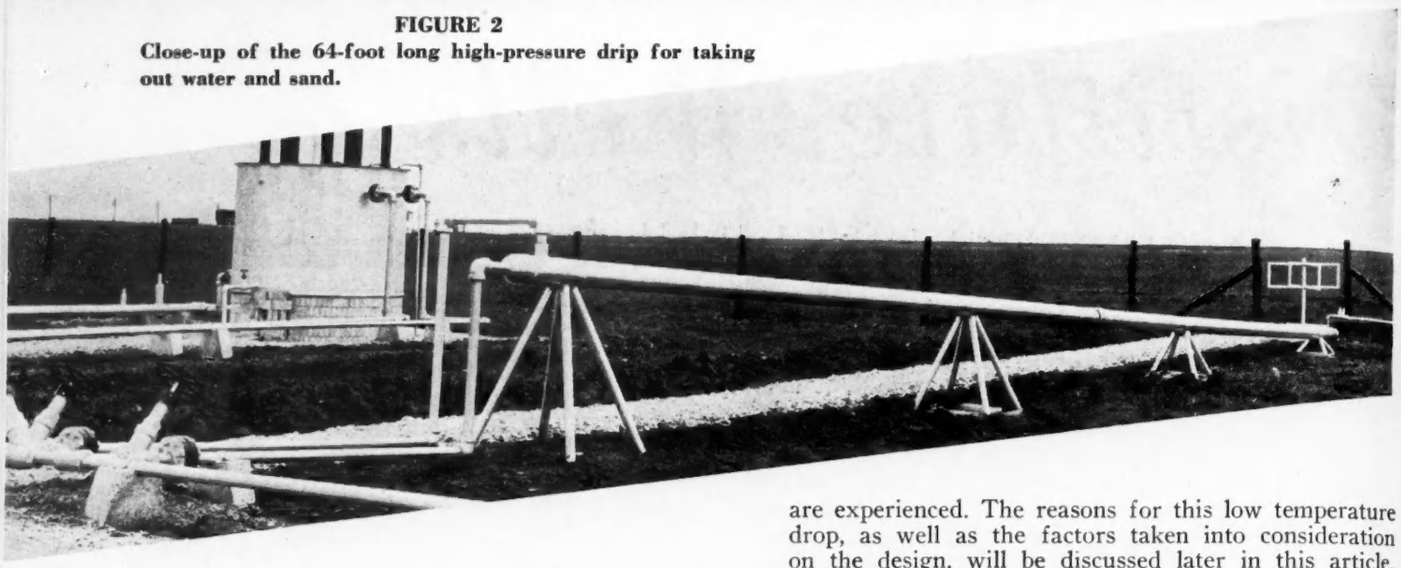
right background may be seen the well with the connection piping, the control system itself along with the drip, the heater tank (behind separator) with several vertical flues, next the 1000-pound separator, and finally the gas measuring system with its recording flow meters and final temperature recorder.

Figure 2 goes into more definite details in the various parts of this control system, showing the high-pressure line leading from the well to the drip. This drip is designed to take out water and slight amounts of sand that might be produced. It is not designed to take care of bad sand conditions, as it is obvious that equipment of this nature would soon deteriorate and in fact refuse to eliminate sand under these conditions. It has, however, functioned well where small surges of sand did develop. Water is taken out rather thoroughly. This drip is approximately 64 feet long, and is fabricated from 7-inch O.D. Grade D pipe. It was tested to 6000 pounds hydraulic pressure before being placed in service. The bleed shown at the far end has two valves on it to insure shut off. These valves are 1-inch in size, and are used to blowdown the water in the drip every few hours.

Figure 3 shows the direct heating and control systems used on this well. At the extreme right are shown the manifolds and lines leading to the high-pressure coil type heater. This heater is designed to operate under full well pressures, and its function is to raise the temperature of the combined oil and gas. The tank itself is 7 feet in diameter by 5 feet in height. The bottom is made from heavy fire box steel, and rests on a fire brick foundation. Gas burners of a conventional type are placed in this fire box, and heat the bottom of the tank while the products of combustion are carried out the numerous flues shown extending from the top of the tank. The tank, of course, is kept filled with water. A very small quantity of water is used by these heaters. The water is kept somewhat below 212° F., so that very little is lost by evaporation. There is some loss, however, due to windage, but not over one or two barrels per day. The high-pressure lines, in which the gas and oil is carried, are made in coils shown extending into the side of the tank. These coils are formed from 2-inch hydraulic pipe, and are tested to 6000 pounds per square inch, as is the rest of the high-pressure equipment. This heated gas and oil is brought back to the first stage of pressure reduction where the

FIGURE 2

Close-up of the 64-foot long high-pressure drip for taking out water and sand.

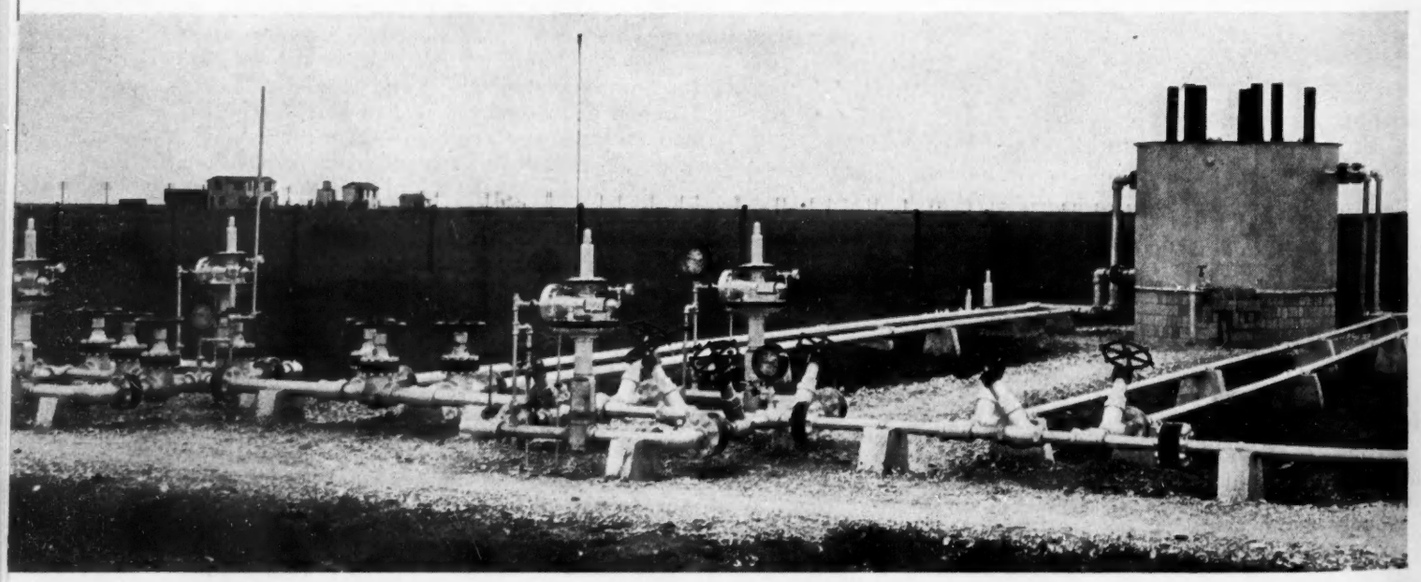


pressures are reduced from approximately 3000 pounds to 1250 pounds. The high-pressure regulators shown are of the balanced parabolic trim type pilot operated. The bodies are for 2-inch connection, but the trim is designed on orifice formulae to pass the required amount of gas and oil with approximately mid-valve position. Where standby regulators are used, as shown here, one pressure reducing regulator will have a large trim to take care of the maximum flow conditions. It has been found that with pressure drops, such as discussed here, and with flows that may vary from as little as one million cubic feet per day to as great as twelve million per day, this variation can be adequately handled with ½-inch effective trim on the small capacity valve while 1-inch trim is used on the larger capacity valve. With this pressure drop from 3000 pounds to 1250 pounds, a temperature drop is experienced due to the refrigeration caused by the expansion of the gases. Temperatures do not drop nearly to the extent that should be expected if Boyles and Charles Law were in effect. Of course, direct adiabatic expansion can not be achieved. Temperature drops from the up stream of approximately 130 or 140° F., to 70 or 80° F. are experienced. The reasons for this low temperature drop, as well as the factors taken into consideration on the design, will be discussed later in this article. This reduced pressure of 1250 pounds and 70 or 80° F. gas and oil is taken back into the heater through a line increased in size to 3 inches. This coil is fabricated from 3-inch hydraulic pipe, and all this equipment is tested to 6000 pounds. The reason for this is, in case any trouble develops in the first stage heater or regulator, the entire load may be taken temporarily by the down stream heater and regulators. The mixture of gas and oil is heated in this second stage to temperatures approximately that required in the first stage of regulators, and the pressure drop is from 1250 pounds to approximately 600 pounds, where the final temperature is held to approximately 60° F. This final temperature can be varied at will by the operator, and the temperature at which most efficient separation is obtained is, of course, the one selected for the final temperature.

Figure 4 shows the 1000-pound separator with the

FIGURE 3

General view of heater and regulating valves (automatic chokes), which constitute the actual control system.



TALK ABOUT PUMPABILITY

A 15.7-POUND CEMENT! As they mixed it, the slurry looked for all the world like jelly. "Just can't reach the bottom," they said. But it took exactly 26 minutes from the time the mud pumps started until 300 sacks of 'Starcor' were in position, in Houston Oil Company's McGregor No. 10, at Clarkwood—5725 ft. of 7-inch casing, 9⅞-inch hole, bottom-hole temperature over 150° F.

At the end of the job, pressures rose to only 1300 lbs., from a mud circulation of 600 lbs. That's pumpability—and that's 'Starcor'!

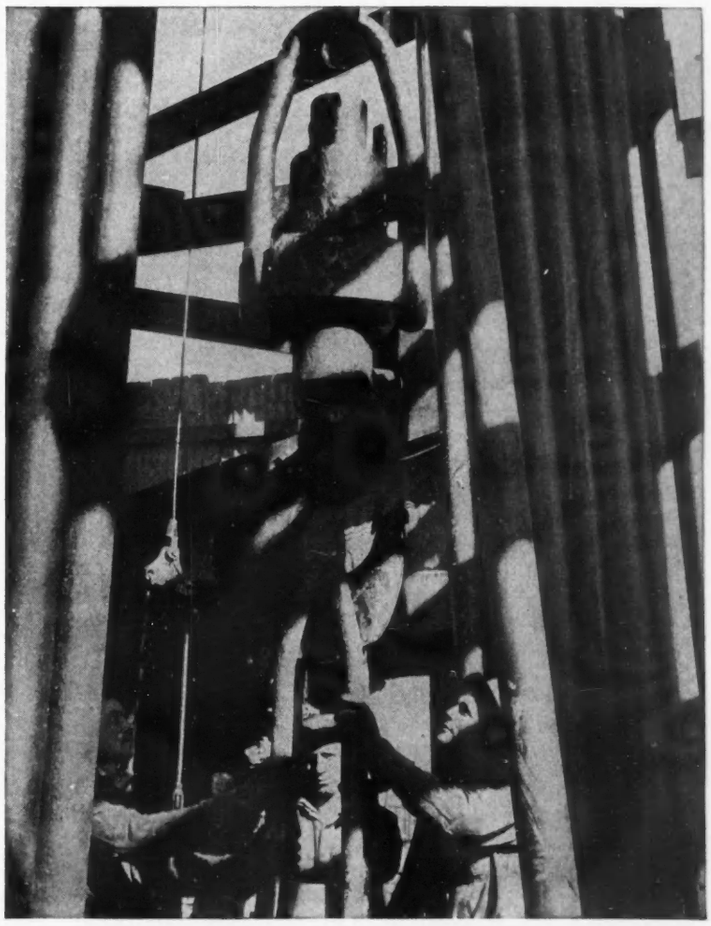
Remember, 300 sacks of 'Starcor' weigh 14 tons, so the column was unbalanced to just that extent. The cement had to be good, to permit placing with only 1300-pound pressure! Free-flowing, sure enough.

Free-Flowing at High Temperatures

'Starcor' is free-flowing under high temperature and pressure. On this job, it flowed 1130 ft. behind the casing, filling up all the cracks and crevices in the formation—flowed snugly close to the casing and then bonded. Result, a cementing job worth the time and money expended.

That's the kind of cement Oil Men asked for—a cement that does not set in the casing, no matter what the heat and pressure—a cement that flows so freely it can and does fill the entire annular space between formation and casing—a cement that sets normally, yet hardens rapidly once it is in position, bonding firmly to give you real protection.

For 'Starcor',* like 'Incor',* is truly an Oil Man's cement—made to measure for oil-well work. Use it on your next job—see the difference it makes. Lone Star Cement Corporation, Dallas... Houston. *Reg. U. S. Pat. Off.



TWO PORTLAND CEMENTS—BOTH MADE FOR OIL WELLS

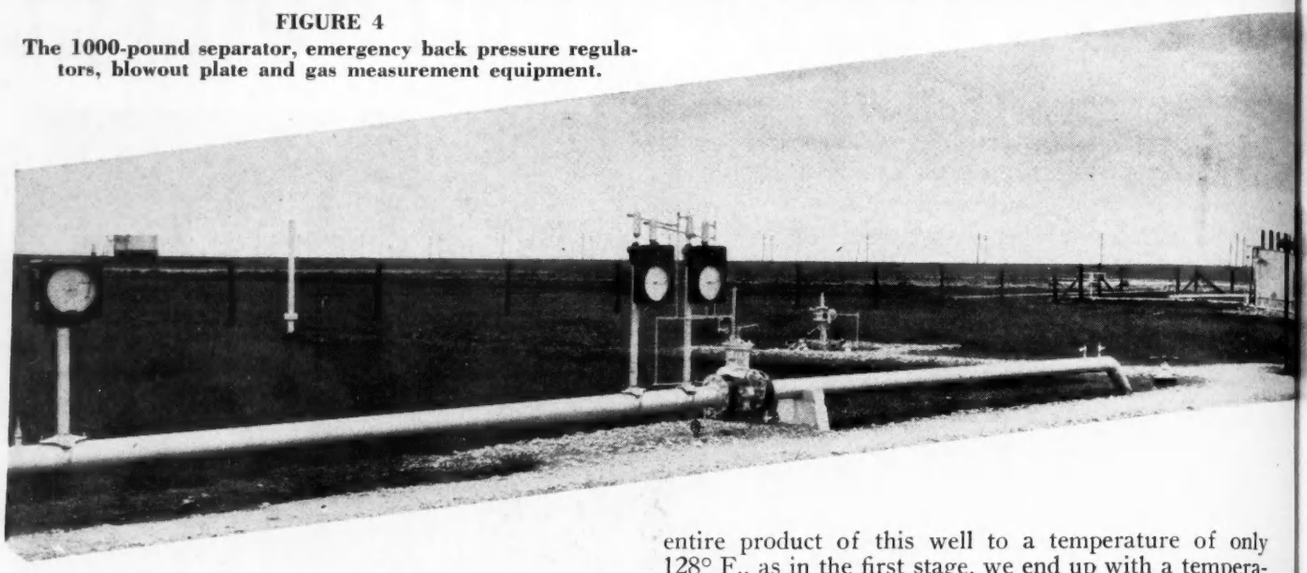
Properties	'Incor'	'Starcor'
Greater pumpability	Free pumping at 15 to 16 lbs.	
Gel-like body	Reduces mud contamination; doesn't settle out	
Controlled setting time	Normal UNDER 140°	Normal OVER 140°
High early strength	Drill out 1 to 2 days	Drill out 2 to 3 days
Sulphate-water resistance	Good	Exceptional sulphate resistance

LONE STAR CEMENT CORPORATION

Makers of LONE STAR CEMENT · 'INCOR' 24-HOUR CEMENT · 'STARCOR' CEMENT

FIGURE 4

The 1000-pound separator, emergency back pressure regulators, blowout plate and gas measurement equipment.



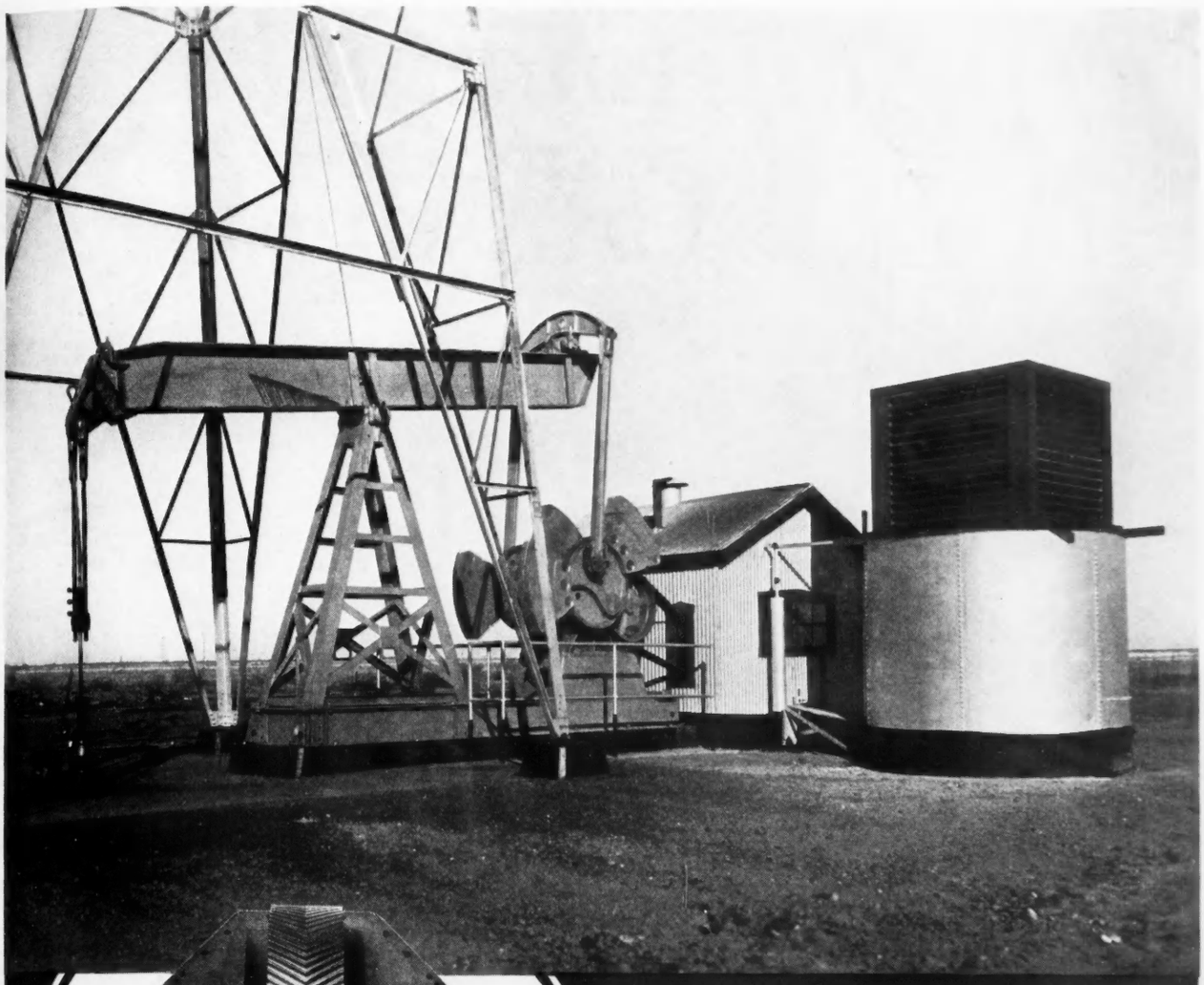
pilot operated back-pressure regulator for emergency relief, and the blowout plate for final safety factors. The gas measurement equipment with the meters is shown in the direct foreground. This consists of flow tubes calibrated in accordance with the latest specifications of the American Gas Association and the orifice fitting, which eliminates the necessity of a by-pass. This particular flow measuring set up is of 6-inch size. The pressures at which it will operate is up to 1000 pounds. The two meters shown are for measuring over wide range demand. The meter on the right has a differential range of zero to 100 inches of water, and the one on the left, zero to 20 inches of water. The peculiar looking connections on top of the meter are ones being quite generally used in gas measuring work at present. We are prone to think of them as one of the offsprings of the Spanish Civil War. These little mercury traps practically eliminate the possibility of blowing mercury out of the meter, regardless of the condition of the check valves or of accidental operation. As commonly known, a considerable amount of our mercury comes from Spain, and the price of mercury has increased considerably, thus it is quite desirable to save as much as possible. The instrument shown at the left hand margin of the picture is a recording thermometer. This is used to make calculations of quantities for deviation away from the temperature agreed as standard for gas measurement in this contract.

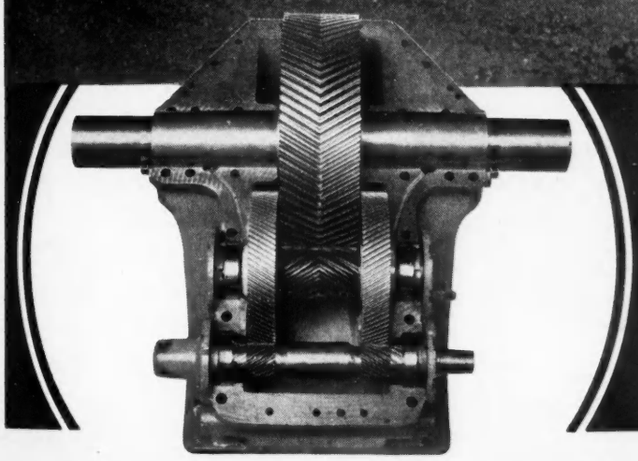
Temperature Pressure Relationship

It was stated before that the matter of temperature and pressure relationship would be discussed later. If dealing with a perfect gas, and certain imperical formulae were applied to the gas from this well, reducing the pressure of the 3000-pound 128° gas to 1250 pounds would case a refrigeration effect that should give a final temperature of approximately minus 60° F. Although a considerable temperature drop is evidenced, it is well known that no such temperature as minus 60° F. is ever reached. We do know, however, that with pressure reduction such as this, considerable freezing is experienced and ice is formed. There is a definite reason for having temperature conditions such as stated above on control systems and heat systems such as this one. If we take a specific example where we heat the entire product of this well to a temperature of only 128° F., as in the first stage, we end up with a temperature of approximately 84° F. When gas and oil at 3000-pound pressure enters into the heater, there is sufficient area and temperature available to raise the gas considerably higher than this 128 degrees. It has been found from experience, as well as considerable calculation, that a certain factor enters into this which gives a lot of heat but not much change in temperature. Actually, what happens is that a certain portion of the light ends of the oil, as well as certain parts of the gas liquefied due to the pressure, are vaporized. A considerable amount of heat carried as latent heat of vaporization is brought into play. Thus, when the pressure is dropped suddenly from 3000 pounds in this particular case to 1250 pounds, the gases cause a refrigeration effect, but the latent heat of vaporization of these oils is immediately giving up due to the change of state of this vaporized oil and liquefied gases, and this minimizes the effect of the refrigeration. It is necessary for efficient and proper design to take this into consideration. Calculations show that in some cases as much as 50 percent of the heat is given up in this manner. It can be seen that although there is not a large change in temperature from the inlet of these heaters to the outlet there has been a considerable input of heat. The heat available in this form is very desirable for this type of work. It is heat that is not given up to the atmosphere as sensible heat.

Separator Efficiency Better

After installing several high-pressure well control systems, such as this one, on wells that had not previously been so equipped an increase in the production of oil has been noted. It is quite obvious that equipment of this nature would not increase the production of oil from the well, yet an increase in oil has been noted in the tank. This can be partially explained by the above heating and cooling, or we might say the evaporation and condensation to a liquid stage has in some way broken up the equilibrium that existed between the gas and the light ends of the oil as well as the gas liquefied due to the pressure. Thus, by passing the light ends of this liquid through the rigorous state of evaporation twice, it seems that better separation is obtained. A very stable oil is obtained from this well, and a very dry gas is sent to the pipe line.





To insure continued efficiency through life, National Unit Pumpers are especially designed for the maintenance of original alignment. Entirely symmetrical, there is no tendency toward unequal wear.

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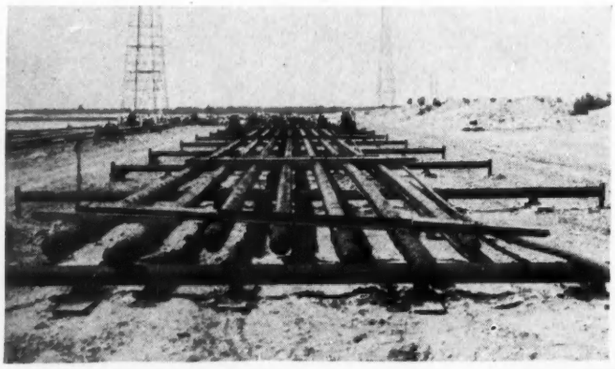
Deep Ship Channel Pipe Line Crossing

IS LAID IN RECORD TIME

By BRAD MILLS, Associate Editor

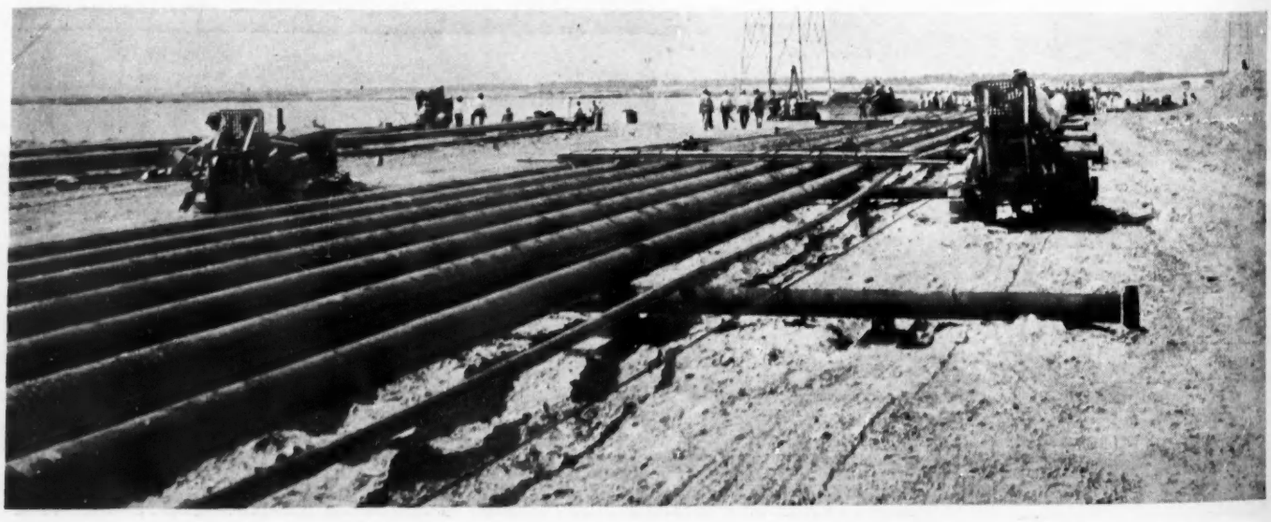
A MULTIPLE pipe line crossing under the Houston ship channel at a point near Baytown was completed in record time May 3 by Humble Pipe Line Company. Eight lines were laid simultaneously in 3½ hours, the combination including six 10-inch lines, one 8-inch line and one 3-inch communications



The scene above shows the end of the multiple pipe assembly before actual crossing of the channel was started.

To the right may be seen the details of the roller assembly that facilitated the ease of pulling the pipe lines into the water. The eight-inch pipe used to support the unit turned on small rollers mounted on heavy boards.

Below is a view of some of the operations while pulling the line across the channel. On one side of the channel, four tractors with winches pulled the pipe, while on the opposite channel side four tractors pulled and guided the pipe.



ROLAGRIP

COUPLING for Tank Connections Costs Less!

The G-B Rolagrip Coupling has come "of age"; it has been subjected to every test in *actual use* and now stands on its own feet, its own record. . . . . The economy of this revolutionary coupling is comparable to its efficiency. Considering *both* the initial cost and such expenses as time and labor, Rolagrip actually *costs less* in those fields where its use is recommended;—for connections to tank batteries, separators, manifolds, etc.; for all temporary lines; and for line repairs in the field. We welcome inquiries—and we will gladly supply additional statistics on the costs of Rolagrip. Write, call or wire

GUSTIN-BACON MFG. CO.
KANSAS CITY, MISSOURI
TULSA FT. WORTH HOUSTON

The Following Table Summarizes ROLAGRIP Advantages For Tank Connections

As Compared to Flanges	*As Compared to Grooved Types*	*As Compared to Other High Pressure Plain End Types*
1 Rolagrip's first cost is much lower.	1 Rolagrip's first cost is slightly higher.	1 Rolagrip's first cost is lower.
2 No previous cutting or threading of pipe necessary with Rolagrip.	***However . .*** 2 Rolagrip eliminates expensive pre-cutting and grooving of pipe; all necessary cutting can be done on the job with Rolagrip.	2 Rolagrip insures a more dependable grip on pipe.
3 Pipe can be several degrees off alignment with Rolagrip.	3 Saving of time and labor much more than offsets slight difference in first cost.	3 Rolagrip's free action takes care of contraction and expansion.
4 Only two bolts to tighten on the Rolagrip—hence, quicker work and more joints per hour.		4 Rolagrip's line contact insures against sticking or freezing as a result of rusting.

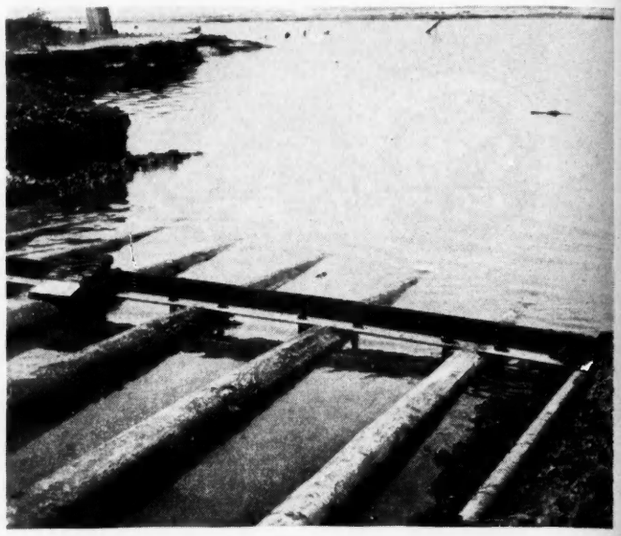
These Advantages Mean An Actual Saving of Time and Money

line. The story of putting these lines in place is told by the accompanying photographs.

The length of the pipe line assembly was 1821 feet from shore to shore, but the length of the maximum cut across the channel proper was 900 feet. The sloping trough or ditch from either side was cut on a 3-to-1 (one foot of drop to each three horizontal feet) slant, these sloping cuts reaching their maximum depth at the edge or shoulder of the main ship chanel. The trough then was cut horizontally across the chanel to a depth of 47 feet below mean low tide, or 15 feet deeper than the channel. The contemplated deepening of the channel to 37 feet will not endanger the line. The trough is 25 feet wide at the bottom.

All channel traffic was stopped for five hours, but the job was completed in 3½ hours. A diver inspected the position of the pipe after it was laid, and found that the pipe assembly conformed to the bottom of the 47-foot trough.

The lines will be used for carrying crude oil from

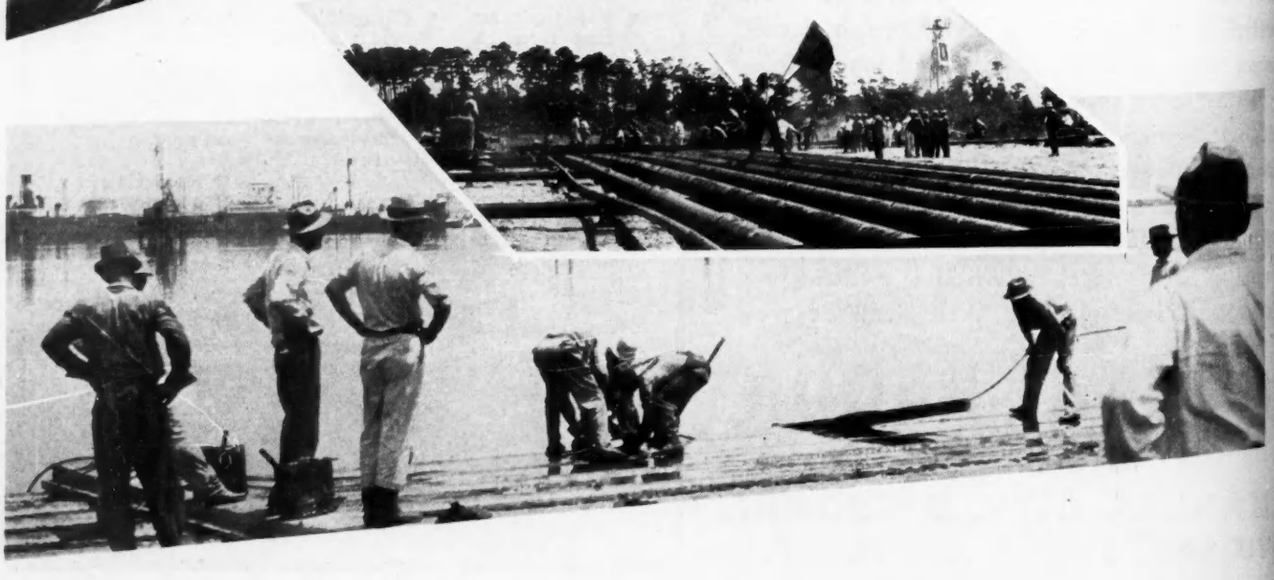


Heavy angle iron was used to clamp the eight lines and hold them in position as a single unit, as shown above. It was the original plan to remove these angle iron bars, but this may not be done.

At each shoulder of the ship channel heavy iron weights were placed on the pipe to assure sinking into position and to add stability. These weights may be seen in the top left photograph.

Operations were carried on by signals. The small insert picture shows one of the men signaling to the boats and opposite shore.

Workmen in the scene below are giving the pipe a farewell dab of tar here and there before it went into the water. This was to cover up any scratches that might have been inflicted in moving the lines.



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Always a user
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Continent Distributors: International Supply Co., Moorlane Company—California
tributors: Hickey Pipe & Supply Co., 3375 East Slauson Ave., Los Angeles, Calif.

the company's Webster pump station to the Baytown refinery. More than 70 men worked several weeks preparing the multiple pipe crossing for the "slide" across the channel. The undertaking represents an outlay of about $250,000.

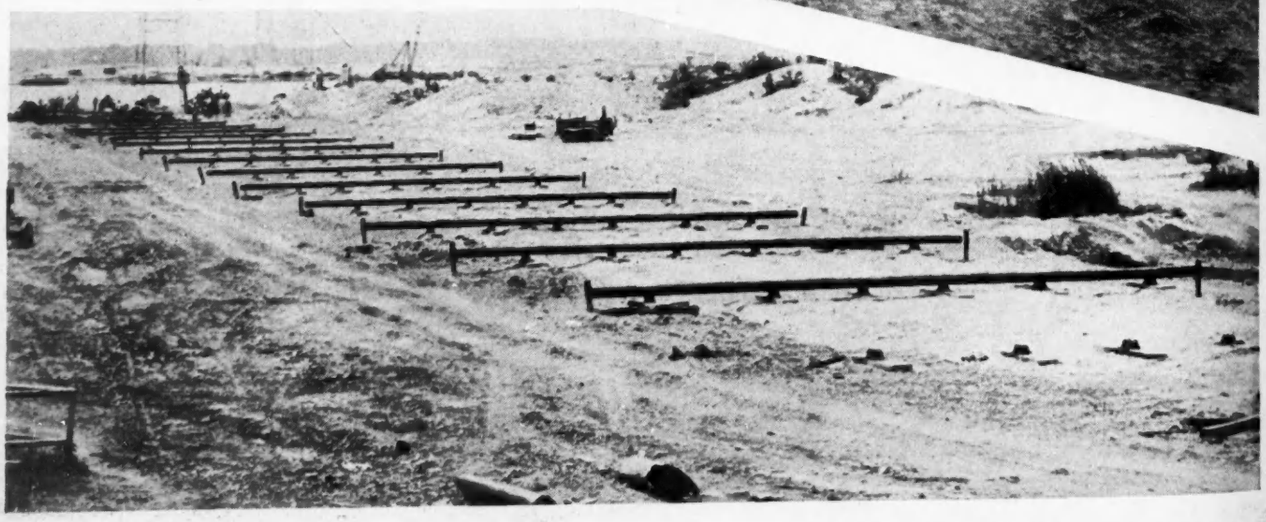
The pipe was heavily coated with creosote, tar and asphalt. The eight-pipe section was tied together with heavy angle iron and clamps. The original intention was to remove the angle iron cross-members, but this may not be done. The diver time required for the removal of the clamps and iron was estimated at 500 hours. An inspection of the position of the pipe showed that it conformed to the bottom of the trough. The heavy clamps serving as weights were stationed near each shoulder of the ship channel as positive anchors.

R. G. Gofner, assistant division superintendent, supervised the work. He is recognized as one of the foremost authorities on river crossing projects, having supervised such work in various parts of the world. He helped to lay a pipe line across the River Jordan, and more recently repaired a line across the

Pine boards used to cushion and protect the pipe as it passed over the rollers are being removed from beneath the lines after they pass over the last roller in the photograph to the left. The man in the foreground of the same picture is tightening the clamps holding the angle iron in place. This was performed just before the pipe entered the water.

To the right is the last part of the big scoot. Only a short section of the pipe remains to be pulled into position.

Below the pipe is in place and the rollers are bare. The job on the north, or "pushing" side is about completed.



Tomorrow

PULL TUBING
SET PACKERS
RUN TUBING IN TUBING
REMOVE VALVES
REPLACE VALVES
ARTIFICIAL STIMULATION OPERATIONS
INSTALL NEW DEVELOPMENTS

Under Pressure

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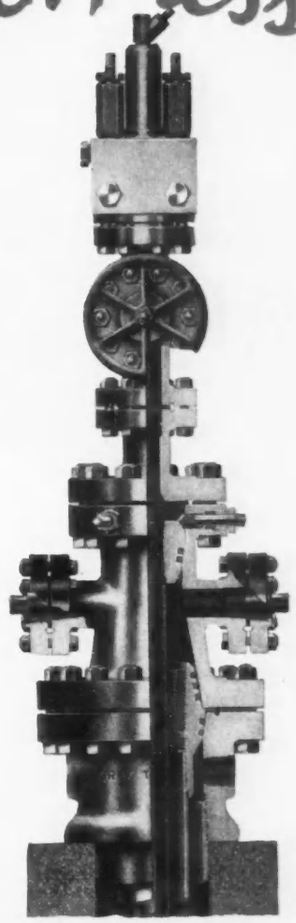


A F O U N D A T I O N

TO WHICH may be **added** control accessories as required — for Drilling, Completion, and After Completion Operations.

FROM WHICH these accessories may be **removed** as desired — to reduce space required, and to increase efficiency, and economy of operation.

WITH WHICH any operation, usual or unusual, may be performed — **during** — **at** — and **after completion.**

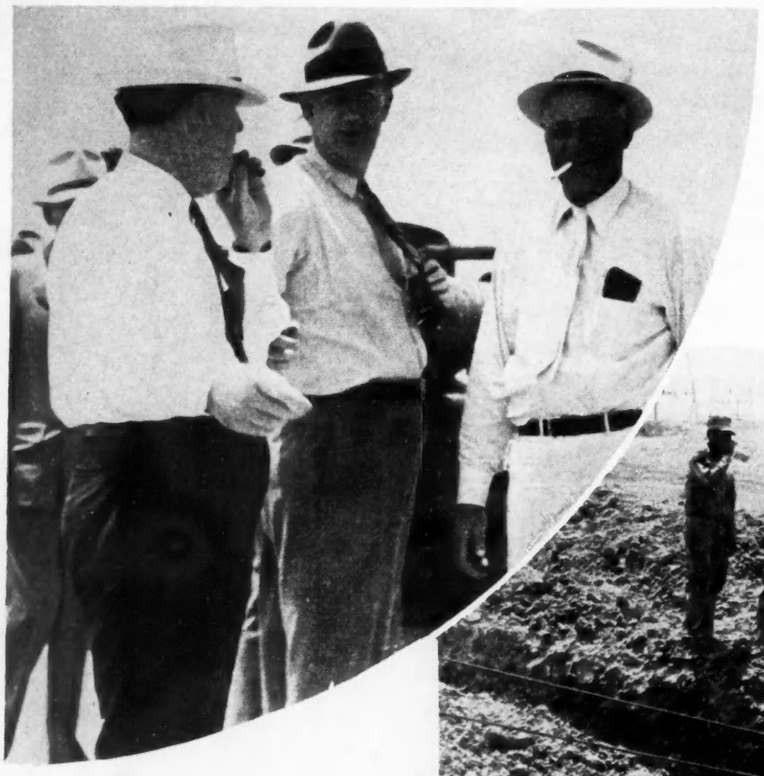
All **WITH THE WELL UNDER CONTROL AND WITHOUT KILLING THE WELL.**

GRAY
TOOL COMPANY
HOUSTON ~ TEXAS

NO. 12
of a series
on systems of
well control

Mississippi River near St. Louis. The latter line broke and the ends curled back. Company engineers estimated that it would require six months to replace the line. Gofner was borrowed from Humble Pipe Line Company, and completed temporary repairs in six days.

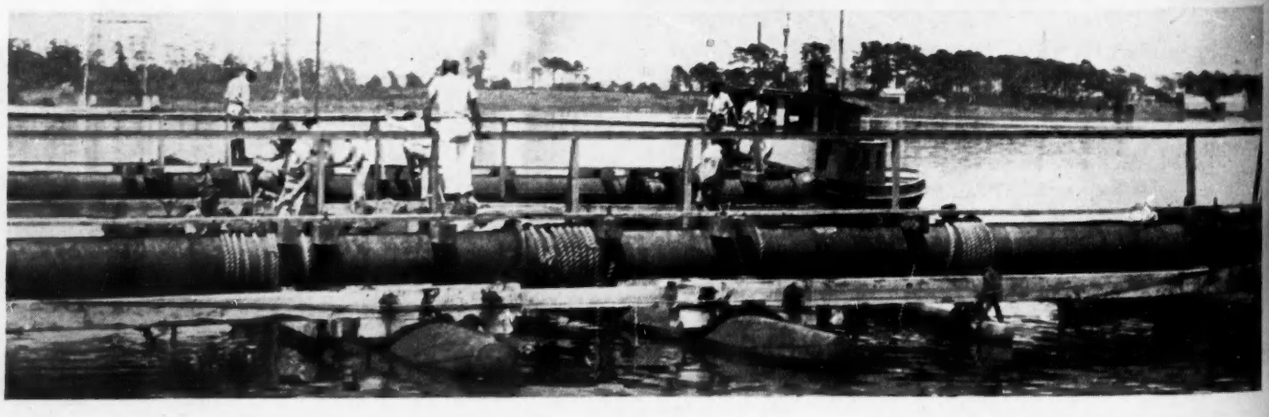
The multiple pipe line crossing completed near Baytown has a much greater capacity than required for present operations, but the additional lines will be in place when needed. The extra capacity also gives a strong safety margin. The network of lines was made up on the shore, and pulled into position as a single unit. Several special arrangements were used to facilitate this work.



Left to right in the top photograph: R. V. Hanrahan, president of Humble Pipe Line Company; J. A. Neath, vice president and general superintendent; and R. G. Gofner, assistant division supreintendent and directly in charge of laying the channel lines. These men were on the scene at Baytown.

The multiple pipe assembly has been landed on the other side of the channel in the picture to the right. Only 3½ hours of the allotted five hours were required. The pipe is now in position to be tied into the main line system.

At the bottom is one of the last operations on the receiving shore side. The ropes that held the pipe to the pontoons are being released. The forward end of the pipe was suspended beneath the pontoons and barge during the laying of the crossing.



MODERNIZE YOUR ROTARY RIGS

"OILWELL" ROTARY DRILLING UNIT

...aves with Steam – 90% of Drilling Time

HOISTING engines use too much steam for the relatively light load of rotating the drill pipe. Why dissipate power through the draw-works with accompanying wear and tear on chains and sprockets?

Solve this problem by using an "OILWELL" Rotary Drilling Unit powered by a No. 7 Vertical Twin-Cylinder Steam Engine with variable cut-off. These units are the last word in modernization.

Major advantages are:

Variable cut-off utilizes the expansive power of steam.

20% less steam consumed.

Reduced wear on hoisting engine, hoist, and chains.

Less strain on drill pipe.

Drilling-up made possible.

Operation practically noiseless.

THIS INSTALLATION *on a Gulf Coast deep test shows how elimination of chain drive to rotary improves safety by providing greater accessibility to all parts of the derrick floor.*

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OIL WELL SUPPLY COMPANY

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"OILWELL"

Handy Chart

FOR COMPUTING THE NUMBER OF LENGTHS FOR GIVEN DISTANCE

By W. F. SCHAPHORST,
Mechanical Engineer, Newark, New Jersey

OIL field men often want to compute the number of lengths of pipe, tubes, tile, conduit, boards, rails, shafting, and similar pieces necessary to make up a given length or distance, and it involves a problem in division. Longhand division is usually a tedious task and much disliked by all.

Here is a chart that will instantly give the answer by simply laying a straightedge across the chart. Or, merely stretch a thread across it. The number of pieces is instantly given in column C.

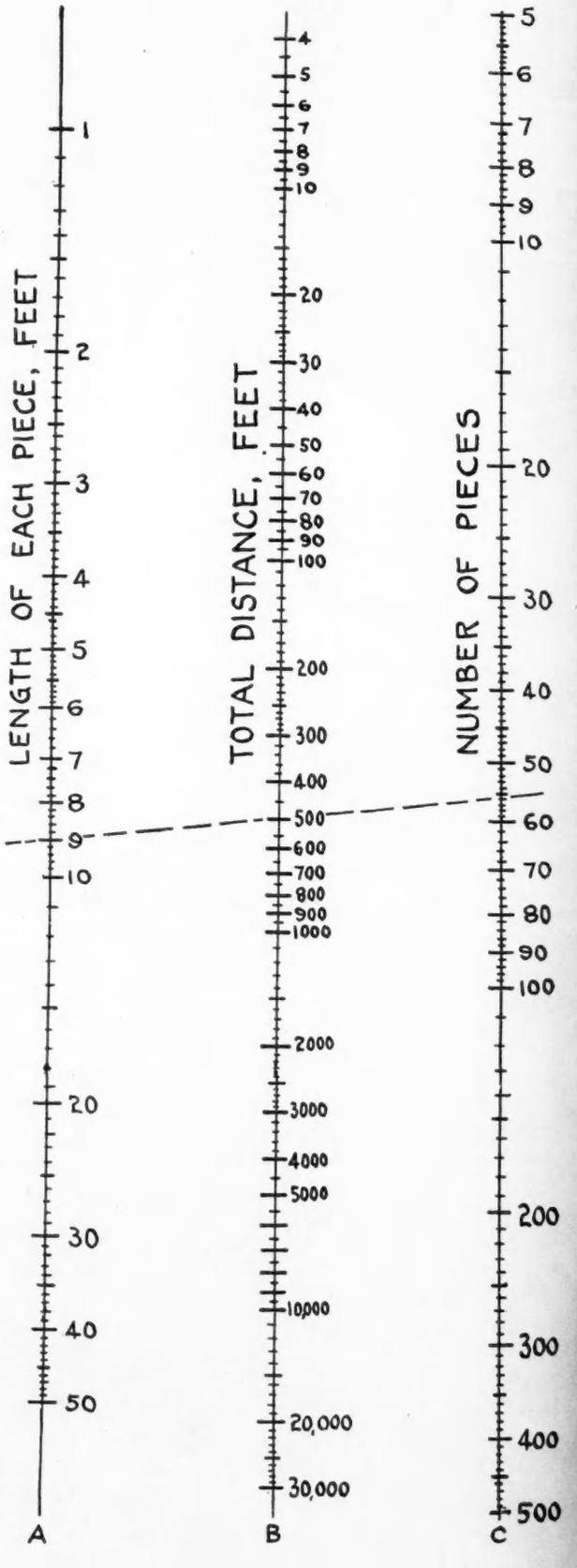
For example, if a line of some kind 500 feet long is to be built and pieces 9 feet long are available, how many lengths, end to end, will be needed?

The dotted line running across this chart shows how easily it is done. Simply run the line through the 9, column A, and the 500, column B, and the intersection with column C shows the answer to be slightly over 55. In other words, about 56 pieces will be required to make up the total distance of 500 feet.

It will be noted that the range of the chart is very great. It will take care of a total distance varying from 4 to 30,000 feet. The length of each piece may vary from 1 foot to 50 feet, and it will take care of any number of pieces from 5 to 500.

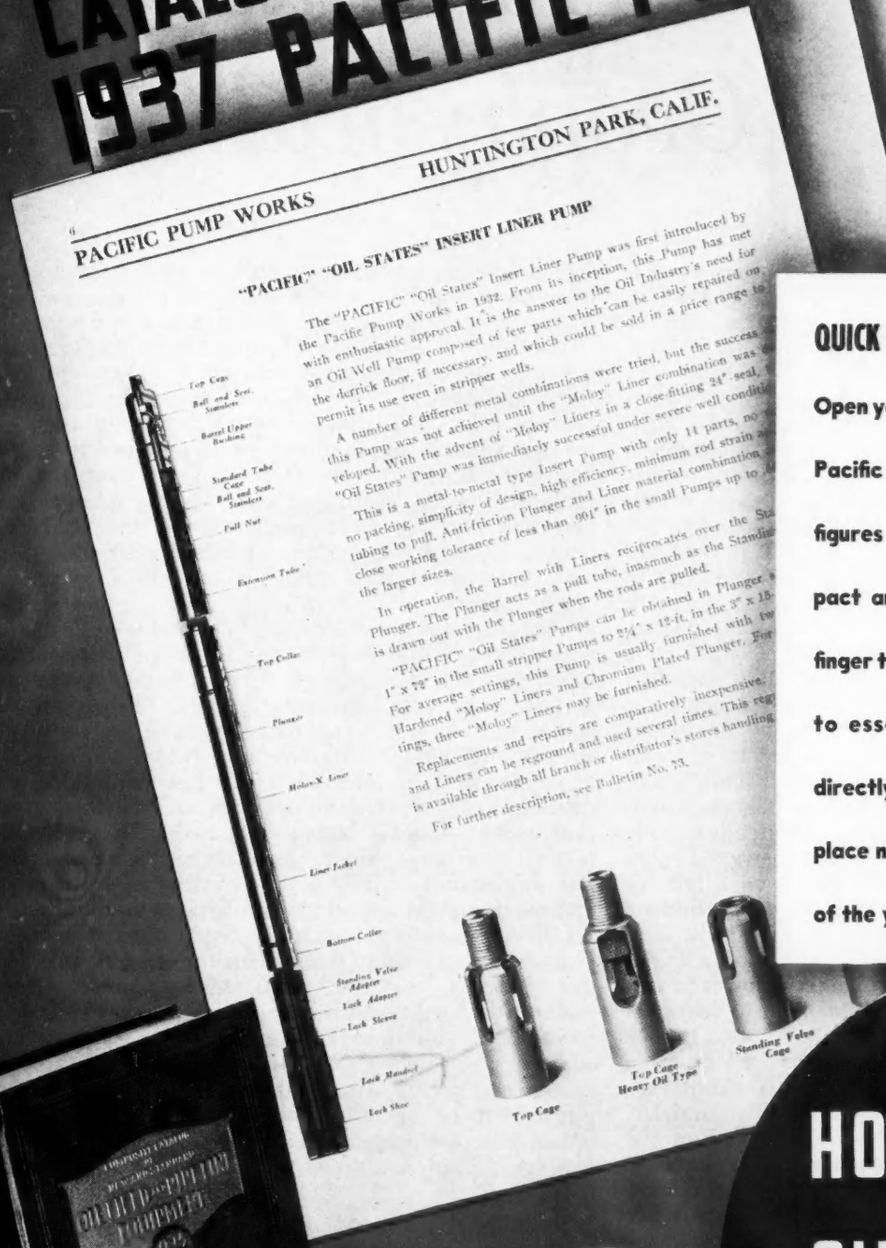
As a matter of fact, the chart has no limitations whatever. By simply adding two ciphers to any figure in column B, two ciphers would have to be added to the figures in column C. Thus, if the total length were 50,000 feet instead of 500, the same dotted line drawn across this chart would give the answer as "about 5,600 pieces" instead of 56. Or, if the total distance were 500,000 feet, which means that three ciphers are added to column B, the answer in column C would be "about 56,000 pieces."

The chart is simple, quick and useful.



This chart is a simple and quick means of determining the number of lengths of any product required to cover a given distance, for example, a pipe line.

LOOK IN YOUR COPY OF COMPOSITE CATALOG FOR THE NEW 1937 PACIFIC PUMP CATALOG!


6
PACIFIC PUMP WORKS
HUNTINGTON PARK, CALIF.
"PACIFIC" "OIL STATES" INSERT LINER PUMP
The "PACIFIC" "Oil States" Insert Liner Pump was first introduced by the Pacific Pump Works in 1932. From its inception, this Pump has met with enthusiastic approval. It is the answer to the Oil Industry's need for an Oil Well Pump composed of few parts which can be easily repaired on the derrick floor, if necessary, and which could be sold in a price range to permit its use even in stripper wells.
A number of different metal combinations were tried, but the success this Pump was not achieved until the "Moloy" Liner combination was veloped. With the advent of "Moloy" Liners in a close-fitting 24" seal, "Oil States" Pump was immediately successful under severe well condi
This is a metal-to-metal type Insert Pump with only 14 parts, no packing, simplicity of design, high efficiency, minimum rod strain a tubing to pull. Anti-friction Plunger and Liner material combination close working tolerance of less than .001" in the small Pumps up to the larger sizes.
In operation, the Barrel with Liners reciprocates over the Sta Plunger. The Plunger acts as a pull tube, inasmuch as the Standin is drawn out with the Plunger when the rods are pulled.
"PACIFIC" "Oil States" Pumps can be obtained in Plunger 1" x 72" in the small stripper Pumps to 2¼" x 12-ft. in the 3" x 15- For average settings, this Pump is usually furnished with two Hardened "Moloy" Liners and Chromium Plated Plunger. For tings, three "Moloy" Liners may be furnished.
Replacements and repairs are comparatively inexpensive, and Liners can be reground and used several times. This regr is available through all branch or distributor's stores handling
For further description, see Bulletin No. 73.
Top Cage
Ball and Seat Stainless
Barrel Upper Bushing
Standard Tube Cage
Ball and Seat Stainless
Pull Nut
Extension Tube
Top Collar
Plunger
Moloy-X Liner
Liner Jacket
Bottom Collar
Standing Valve Adapter
Lock Adapter
Lock Sleeve
Lock Mandrel
Lock Shoe
Top Cage
Top Cage Heavy Oil Type
Standing Valve Cage

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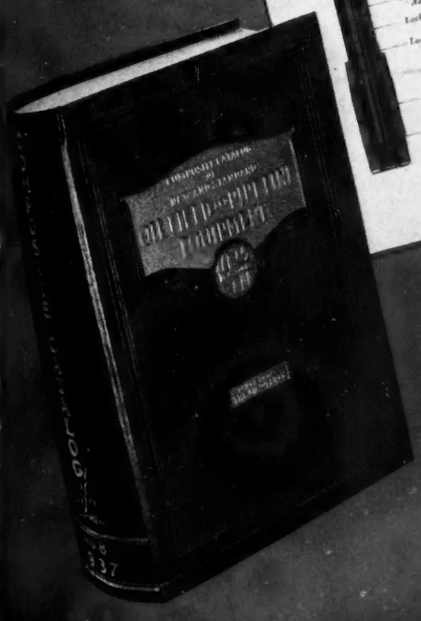

PACIFIC PUMP WORKS
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HOT OIL PUMPS
OILWELL PUMPS
TURBINE PUMPS

By O. L. BRACE,
Consulting Geologist

DISCUSSION OF DR. L. W. BLAU'S PAPER

A PART of this discussion was published in The OIL WEEKLY of April 26, 1937, but through error a goodly portion was omitted. In the interest of those readers who read the previous installment, the entire discussion of Dr. L. W. Blau's paper by O. L. Brace is presented herewith.

Blau's paper was presented before the American Association of Petroleum Geologists annual meeting in Los Angeles, and represented the geophysicists side of the question "Interrelationship of Geology and Geophysics", and discussed Brace's presentation of the geologists side of the question, which appeared earlier in one of the association's bulletins.

Interpretation of Geophysical Data

IN a previously published paper, "The Interpretation of Geophysical Data" by Dr. Ludwig W. Blau (THE OIL WEEKLY, March 29, 1937), and in a discussion of my paper "Interrelationship of Geology and Geophysics" by Dr. E. E. Rosaire, written for publication in "Geophysics," the main criticism of my expressed viewpoint lies in what these writers term the *orthodox* attitude of the geologist toward structural interpretation, which results in his insistence upon a picture that is *acceptable*. This attempt to place the toga of orthodoxy solely across the shoulders of the geologist represents a distortion of the facts. In an early part of his paper, Dr. Blau states that the geologist should "call to mind the prospects that were missed because pertinent data were disregarded," yet at a later point he relates, with tragic emphasis, how Marland Oil Company of Texas outlined, at an early date, by means of applied geology, a dozen or more structural areas, which have subsequently been brought in as producing fields and how "geophysics in less than two years shot out . . . and condemned each and every one of them." This is obviously a case of orthodoxy, in geophysics, at its worst.

It is true that the geologist is too frequently, in his interpretation of structure, a victim of a restricted background and, particularly where he has been forced to concentrate within a given province over a period of years, is there a tendency to draw interpretative conclusions that are colored by the influence of a given structural type. A drift toward orthodoxy, however, is a weakness that plagues all science and it little behooves the geophysicist to call the kettle black. As a matter of fact, the orthodox attitude of the geophysicist today is one of the greatest handicaps to the successful continuation of reflection seismic work. Both Dr. Blau and Dr. Rosaire forecast, with regrets, the early passing of the reflection seismograph as the outstanding exploratory method, all because of the shortage of first class domes. The second and third class prospects, of which there are a great number at the present time, are of this lower classification because they do not fit the requirements of the orthodox number one Iowa type. Yet, unquestionably, many of them represent favorable structral traps and, with proper interpretation, may lead to the discovery of oil reserves greater than those represented by the more spectacular first class domes of the past. A case in point is Tepetate. At the first mapping of this structure, the reflection seismologist was quick to give it an unfavorable rating because it did not conform to the more desirable major-closure type of structure.

Speaking commercially, both the geologist and the geophysicist are concerned with one problem: the location and delimitation of structural traps favorable to the accumulation of oil and gas. Quite evidently, each has his own place in the solution of this problem. It has not been my intention to advocate that the geologist should concern himself with those results of geophysical exploration that are of a purely abstract nature. If the geophysicist cares to contour with "sharp edges, scallops and other unorthodox frills" in an effort to present "measurements of physical properties . . . that are not to be correlated with geological conditions," that is surely his privilege and he has the right to resent the interference of the geologist in this highly specialized, and unquestionably intriguing, activity. The experienced geologist, however, knows that structures are essentially smooth and regular in their configuration and he is not to be blamed if he attempts, at the last analysis, to produce a picture that, while not necessarily orthodox and acceptable, is at least natural. As long as the geophysicist is dealing with measurements of physical properties that are understandable only to the physicist, then the geologist must content himself with his tasks as librarian, as Dr. Rosaire has it, and not intrude himself with his structural theorizing. It is when the geophysicist produces records that are purported to represent direct readings of strike and dip that the geologist enters the scene as a vital necessity. Even under such circumstances, the geologist, theoretically, becomes less a factor as the number of structural control points approaches infinity but the difficulty of this approach makes interpolation a necessity and it is structural interpolation, in turn, that requires a breadth of knowledge of structural occurrence.

Both Dr. Blau and Dr. Rosaire have attempted to make a strong point of the fact that geologists, in the past and, therefore, by assumption, in the present and future, have failed to recognize structural elements that have since proven to be important factors in oil accumulation. A case in point, according to their contention, is that of the significance of faulting along the Mexia zone and the presence of faulting on the Gulf Coast. In my

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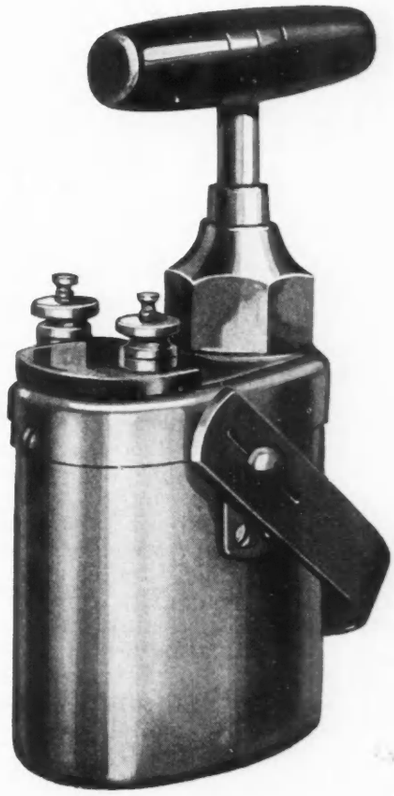

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paper, I made the statement that "the complexity of structural forms under which oil and gas may accumulate was not recognized until this diversity was brought to light in the natural progress of oil field development," which is another way of saying that structural geology is a living science in which the fundamental, governing laws have been revealed directly as the result of experience. Due to the progress of the science prior to the Mexia days, I am inclined to question the statement that experienced geologists, conversant with the facts, did not recognize the significance of the faulting at Mexia and, subsequently, on the Gulf Coast.

Before closing, I want to take issue again with Dr. Rosaire in one of his statements in his discussion of my paper. He, therein, accuses the early Gulf coastal geologist of incompetence, on the evidence that during the period from 1917 to 1931, 675 coastal wildcats were drilled and but one dome was discovered. His implication is that while the geophysicist, during the recent past, has made discoveries too numerous to mention, the geologist in the preceding 14 years, was able to gather only sufficient geological evidence to result in one discovery. He, deliberately or otherwise, ignores the fact that a great number of these 675 tests were perfect locations on prospects that have since proven productive in deep sands and that the "lack of higher structural finding powers" which he deplores was, in reality, a lack of the means and the incentive for deep drilling. I do not exaggerate the facts in stating that the modern reflection seismologist, of whom Dr. Rosaire is the most successful exponent, came into being with a proverbial silver spoon in his mouth. Prospects were laid out for his selection like pies on a shelf. Fifteen years of intensive study by the surface geologist, followed by the pioneer gravity man and the refraction seismologist, had isolated a vast number of favorable prospects, but these remained untested because of the slow advancement of deep drilling technique and, in the latter part of the period, of a glutted oil market and a generally depressed condition throughout the oil industry. In 1931 and 1932, the reflection seismologist, emerging with a new method of exploration, was met with a favorable change in all of those retarding factors of the past, and in a period of three or four years, he claimed and carried off many of the trophies that had accumulated over a period of 15 years. Obviously then, the early coastal geologist, rather than being incompetent, had reached a high state of professional efficiency. This is further attested by Dr. Blau's recital of the tragic experiences of Marland Oil Company of Texas during this same period.

There is not space here to analyze Dr. Blau's paper, point by point. In my original paper, I had no desire to offer cause for friction between the two branches of the exploratory group, but rather to clarify a relationship that seems unnecessarily confused. In the present discussion, therefore, I have taken issue mainly with the accusation that the geologist, alone, is a victim of orthodoxy and I here contend that he incorporates this weakness in his scientific viewpoint to no greater degree than does the geophysicist or the practitioner in any other active science. Since, in reference to structural interpretation, the term *acceptable* has proven so controversial, I would substitute the word *natural.* Let the geophysicist give free reign to his imagination with his frills and crossed contours but give the geologist, also, the opportunity to express his interpretation of geophysical structures as nature designed them: smooth, simplified and without undue minor complexity.

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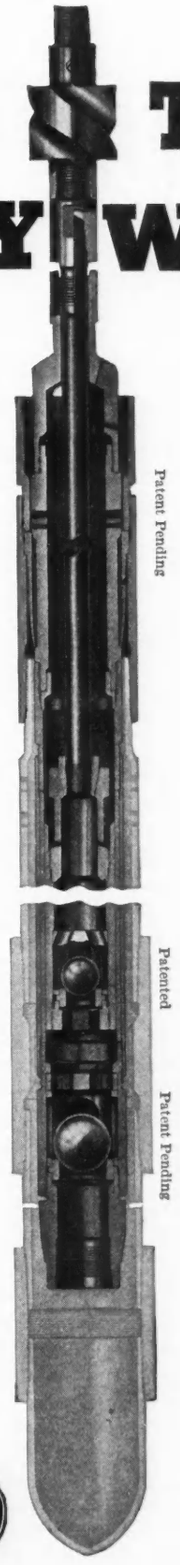

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DEEP WELL PLUNGER PUMPS **AXELSON** SUCKER RODS

Record Shot Used To Snuff Burning Well

By WARREN L. BAKER

SEVERAL interesting and unusual conditions were encountered recently in extinguishing an oil well fire in New Mexico. Likewise, a number of practices of importance were employed in successfully completing the work of snuffing out the flames and controlling the flow.

The well was Continental Oil Company's State 1-C-16, near the southeast edge of the Monument field in Lea County.

Had Extreme Temperatures

One of the peculiar circumstances found at the well was the existence of very high temperatures, which became so great one afternoon that a three-inch water hose burned while a full stream of fluid was circulating through it.

One factor believed to have contributed to the degree of heat, was the sand comprising the top soil. In the first place, this type formation probably absorbed and held the heat, and secondly, water poured onto it for cooling purposes merely soaked in and had little effect.

Effect of Altitude

Still another unusual condition was created by the high altitude of the well, which was 3800 feet above sea level. It was found that the rarer air existing at this height had an action on the force of the explosives, requiring larger shots than heretofore used for putting out oil well fires. The belief is that in the light air the force of the explosives, which naturally follows the course of least resistance, was away from the flames.

Kinley Brothers Called

The well blew out and caught fire April 15. At the time it was bottomed at 3809 feet, and a part of a drill pipe string had been run into the hole. The fire fighters, Myron M. and Floyd T. Kinley, flew to the scene and arrived the following day.

When they arrived they found that the flames were being spread out over the ground, instead of going into the air. Some of the control equipment on the well, and the way in which the steel machinery fell, was causing this.

Consequently, the first task confronting the Kinleys was to get the flames going into the air so they could approach the fire and remove as much of the steel as possible.

After getting a water supply piped to the well, a shot was placed upon a specially constructed carriage. The latter was a small cart placed on automobile wheels. By splitting four-inch pipe in half, a guiding track for the carriage was built and laid up to the mouth of the well at the desired point.

A 30-quart shot of gelatin was placed on the wagon, which was then pushed into position to blow away the snubbing device. This was on April 17; the shot was successful.

When the snubbing device broke loose because of the explosion, the string of drill pipe (about 400 feet) in the well was hurled high into the air. This left a clean hole, but also tore away a four-inch bull plug on the blowout preventer that allowed part of the fire to come out the side.

April 18 was spent in cleaning out rig material.

April 19 it was decided it would be necessary to blow off the preventer, because of fire coming out through the opening, a condition caused when the four-inch bull plug was destroyed. Consequently, a 10-quart shot intended to remove the blowout preventer was set off. This carried away the blowout preventer and the master valve.

April 20 was spent in cleaning out rig debris. When this was accomplished, some fire still existed in the cellar, which was so matted with wreckage the bottom could not be seen. The fire in the cellar was due to a leak in some of the connections.

The morning of April 21 the first actual attempt to shoot out the flames was made. However, a 40-quart shot did not even phase the flow.

An 85-quart shot, which was the largest ever used up to that time on any well, was exploded April 22. This merely broke the flow for a moment.

Record Size Shot

Since this result was unusual, it brought up the question as to what was causing the shots to fail to extinguish the flame. It was decided that the rare atmosphere at the high altitude of the well was the cause, as the light air permitted the force of the explosion to go away from the fire rather than toward it.

The remainder of April 22 was spent in cleaning out the cellar, during which operations the connections coming out the flanged head were removed. This resulted in the flow and fire going straight into the air in one column.

Early the morning of April 23, 155 quarts of gelatin were prepared which was by far the largest shot ever exploded to extinguish an oil well fire. The 155 quarts were made up into three different shots. Two cans containing 40 quarts each were placed on each side of the well, and one of 75 quarts was placed to the rear. This horseshoe-shaped position practically enclosed the well. These shots were fired simultaneously, and were successful in putting out the fire. Although the force of the explosion broke the concrete cellar walls, no damage was inflicted on the pipe.

A flange with a lead gasket was pulled over the well and swung down to contact the flanged head on the pipe. With this accomplished it was then made up tightly to cap the well.

Approximately 12 hours after the fire was out the well had been shut in.

MEN IN THE INDUSTRY'S NEWS

DEWITT T. RING HEADED ARRANGEMENTS COMMITTEE FOR AMERICAN PETROLEUM INSTITUTE EASTERN MEETING

HE IS GEOLOGIST FOR THE OHIO FUEL SUPPLY COMPANY AND OHIO FUEL GAS COMPANY

CHAIRMAN of the arrangements committee for the American Petroleum Institute's Division of Production, Eastern District, meeting, held at Columbus, Ohio, May 6 and 7, was Dewitt T. Ring of Columbus. Ring is geologist for The Ohio Fuel Gas Company and Ohio Fuel Supply Company.

He was born April 26, 1887, at Martin's Ferry, Ohio. Ring attended Ohio State University in 1907 and 1908, and graduated from State University at Kent, Ohio, in 1911 with the degree of Bachelor of Science. He did post-graduate work at the University of Chicago in 1912 and 1913.

Ring was associated with F. Julius Fohs and Humphries Corporation from 1915 to 1923, and was consulting geologist at Tulsa and Eldorado from 1924 to 1927. In 1928, he entered the employ of The Ohio Fuel Gas Company and Ohio Fuel Supply Company.

DEWITT T. RING

RALPH MARSHALL, a member of Oil Well Supply Company's sales organization for the last 15 years, has resigned to become identified with Drilling and Exploration Company, drilling contracting company headed by J. E. Brantly. The concern is drilling several wells at Wilmington for Union Pacific Railroad and Marshall will for the time being make his headquarters at Los Angeles.

A. W. NUNN, with Pioneer Oil & Refining Company at San Antonio for a number of years, has resigned to become president of Charlotte Oil Company. The new organization has holdings in the Branyon field, Caldwell County, which will be developed. Hubert Slimp is secretary of the concern.

W. A. (ARCH) MALEY, geologist with Humble Oil & Refining Company, Corpus Christi, has been elevated to South Texas division geologist. He has been in the area for the company since May, 1929. He replaced W. K. Esgen, who recently resigned.

F. C. OWENS, geologist, and G. D. Beauchamp, scout, have joined the forces of Heep Oil Corporation and Conroe Drilling Corporation in Corpus Christi. They resigned from similar positions with Humble Oil & Refining Company.

EDGAR B. DAVIS, president of United North and South Oil Company of Luling and San Antonio, has just returned from a business trip to the east.

W. K. ESGEN, who for some time has been division geologist for the Humble Oil & Refining Company, and L. V. Mandry, land man for the same concern, Corpus Christi, have resigned to associate themselves in the independent field. They have formed a partnership and opened offices in Corpus Christi.

DR. A. H. ROLLEFSON is in charge of the exploratory operations for Shell Petroleum Corporation's field party, which has opened temporary offices in Robstown. The concern is doing considerable seismograph work in this area.

TOM ALLEN, field superintendent for Petty Geophysical Engineering Company, San Antonio, was the principal speaker at the regular meeting of the South Texas Geological Society, held in Corpus Christi May 3. His subject was "Reflection Seismograph Surveying." The next meeting will be at San Antonio.

M. L. BENEDUM, president of Benedum & Trees Oil Company, accompanied by other officials of the company and its affiliate concerns, has just completed an inspection tour of South Texas properties. Following their South Texas tour, they are scheduled to visit Houston and West Texas. Others in the party included: J. C. Trees, vice president; A. F. Holliday, vice president and manager of Benedum & Trees Oil Company, W. E. Houston, secretary-treasurer of Big Lake Oil Company, and other officials and directors of the concern. Affiliates include Plymouth Oil Company and Hiawatha Oil & Gas Company.

R. G. CARR, of the Houston division of Humble Oil & Refining Company, has been transferred to Corpus Christi to become division land man. He replaces L. V. Mandry, resigned.

JOHN PORTER, Clarion, Pa., a retired employe of United Natural Gas Company, suffered a severe paralytic stroke while at the wheel of his car near his home on May 1. Porter is 67 years of age.

W. S. ZEHRUNG, recently elected president of Pennzoil Company, was honored at a testimonial dinner given by Charles L. Suhr, chairman of the board, at the Arlington Hotel, Oil City, Pa., May 1. Approximately 30 officers and department heads of the company attended and remarks were made by M. A. Brewster, A. B. Jobson, E. C. Breene, L. D. Fulton, R. A. Browne and Mr. Suhr. D. J. Harvey was toastmaster. Zehrung joined the Pennzoil organization as an assistant chemist in 1919.

G. H. SMITH, Toronto, was recently re-elected president of Imperial Oil Company, Limited. Other officers elected are C. A. Eames, R. V. Lesuer, K. C., John McNeil and L. C. McClosky, vice presidents; A. E. Halverson, director, and F. E. Holbrook, secretary-treasurer.

J. H. McLEOD, Calgary, production manager for Imperial Oil Company, Limited, was re-elected president of Royalite Oil Company, Limited, largest Turner Valley operating company. Alexander Hannah, K. C., Calgary, was re-elected vice president. Other directors are G. Harrison Smith, Toronto; W. S. Herron, S. F. Heard, C. M. Moore, all of Calgary. T. E. Burns, Calgary, is secretary-treasurer.

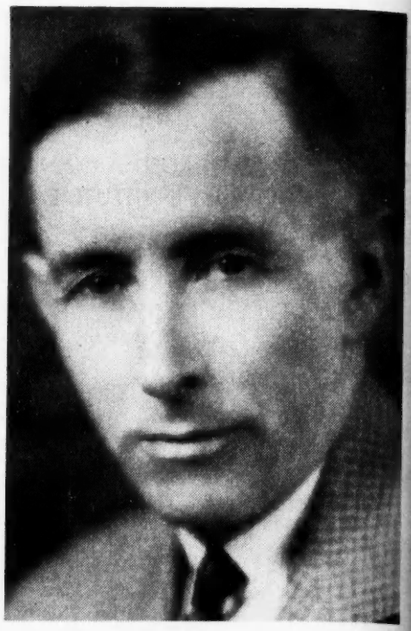
THEODORE J. ABBEY, 65, Oil City, Pa., has been retired by Oil Well Supply Company. He was employed in the Oil City shops of the company for 33 years, during the major portion of that time being engaged as a crane operator. Abbey was born in Port Dalhousie, Canada, and spent his youth in Toronto.

H. C. COOPER, president of Hope Natural Gas Company, Clarksburg, West Virginia, was honored recently by 800 employes. The occasion was the completion of 40 years of service with the Hope group of companies. He started his career in 1891 with National Transit Company at Oil City, Pa. From 1898 to 1904, Cooper served in the United States navy. The next two years, he was engineer in charge of design and construction of pump stations and pipe line connections for Prairie Oil & Gas Company. Under his direction was the first long-haul lines, extending from Oklahoma to Chicago. From 1906 to 1910, he built many pipe lines in various parts of the country. These were for Standard Oil Company of New Jersey and Ohio Oil Company. Cooper joined Hope Natural Gas Company and People's Natural Gas Company in 1910. The first two years he was engineer in charge of construction of compressor stations and pipe lines. From 1912 to 1918, he was general superintendent of Hope Natural Gas Company. He was chief engineer for the Hope group of companies

S. W. DAY ELECTED VICE PRESIDENT IN CHARGE OF PIPE LINE FOR STANDARD OIL COMPANY OF LOUISIANA

S. W. DAY

HE SUCCEEDS F. RAY McGREW, WHO WILL RETIRE AFTER 33 YEARS OF SERVICE



F. RAY McGREW

AT the annual stockholders meeting, held in Baton Rouge last week, S. W. Day of Shreveport was elected vice president of Standard Oil Company of Louisiana in charge of the pipe line department, succeeding F. Ray McGrew, who retires after 33 years service with the company. Day also was named on the board of directors.

Other officers of the company re-elected were: M. J. Rathbone, president; J. A. Bechtold, vice president and treasurer; M. W. Boyer, vice president; J. R. McWilliams, vice president; J. E. Skehan, vice president, and S. E. Kidd, secretary. The board of directors is composed of the officers, and T. M. Milling and W. R. Goodwin.

Day entered the employ of the company in 1905 as a common laborer. Until the subsidiary Standard Pipe Line Company was merged last fall with the Standard Oil Company of Louisiana, he had served as vice president of the former, and when elevated to his new position was general manager of the pipe line department.

McGrew also had risen to his executive position with the company from the ranks. Although having served officially 33 years with the company for several years before the start of this period he had worked for the company during vacations.

G. H. SMITH, Toronto, president of Imperial Oil Company, Limited, was re-elected president of the Dalhousie Oil Company, Limited, Imperial subsidiary. Alexander Hannah, K. C., Calgary, was elected vice president, and T. E. Burns, Calgary, was re-named secretary-treasurer at a recent meeting of the board. Other directors are J. H. McLeod, A. C. Newton, N. J. Christie and S. F. Heard, all of Calgary.

ALLAN T. TOWL, T. C. Towl, J. M. Tussey, E. W. Ziegler and J. F. Burgess are the newly elected directors of Southern Pipe Line Company, Oil City. Directors elected Forrest M. Towl, chairman of the board; Allan T. Towl, president; T. C. Towl, vice president and treasurer, and E. W. Tiegler, secretary. Appointive officers are D. L. Thomas, assistant secretary and treasurer; G. W. Williams and T. J. Stewart, assistant secretaries; E. W. Ziegler, assistant treasurer; W. R. Daugherty, general auditor; H. C. Dorworth, solicitor, and L. J. Vandergrift, general superintendent.

DR. A. B. SINGLETON, Calgary, recently was re-elected president of the Alberta Pacific Consolidated Oils, Limited. T. A. Hornibrook was re-elected vice president and J. L. Hunt was re-appointed secretary. L. H. Fenerty, K. C., Calgary, was added to the board of directors. Other members of the directorate re-elected are H. A. Howard, Dr. W. Hackney, R. W. Ward, T. M. Carlyle and E. T. Chritchley.

ED. R. WHITE, engineer and air-gas meter tester for Gulf Oil Corporation in West Texas for the past three years, has resigned to become a petroleum engineer for Landreth Oil Corporation, with headquarters remaining at Odessa.

ALEXANDER HANNAH, K. C., Calgary, recently was re-elected president of the Foothills Oil & Gas Company, Limited. J. H. McLeod was re-named vice president, and T. E. Burns as secretary-treasurer. Additional directors are C. M. Moore and S. F. Heard.

E. H. BLUM, vice president in charge of domestic crude producing operations for Atlantic Refining Company, and whose headquarters are at Dallas, has been elected to the board of directors of the company. He takes the place of W. M. Irish, who is retiring as president of the company.

A. B. STODART, Toronto, was re-elected president of the Acme Gas & Oil Company when shareholders held their annual meeting in Toronto last week. All other officers and directors were also re-elected.

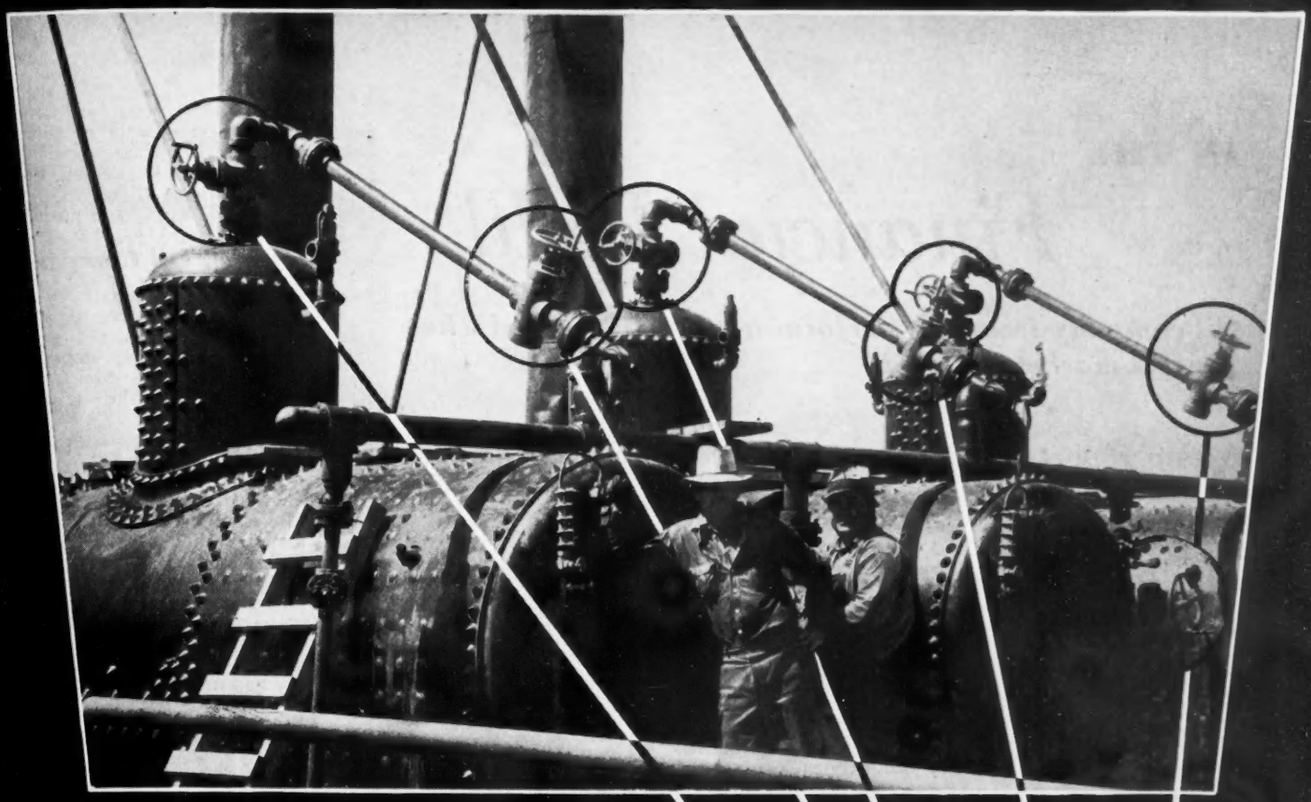
J. H. McLEOD of Calgary, Alberta, Canada, was recently re-elected president of Southwest Petroleums, Limited, a subsidiary of Imperial Oil Company, Limited. Alexander Hannah, K. C., was re-elected vice president, T. E. Burns, secretary-treasurer, and S. F. Heard and M. W. Doherty, directors.

A. J. SIGWORTH, 84, one of the oldest and better known gas well drillers and producers in Eastern Pennsylvania, died at his home in Venus May 2. He had followed the oil and gas industry practically all his life, with the exception of a short period when he was engaged in mining in Silver Cliff, Colorado. He is survived by his widow, two daughters, one brother and one grandson.

from 1918 to 1932. During this period he was elected vice president, and became general manager in 1932. August 1, 1933, was the date Cooper became president of the Hope group of companies.

M. L. BENEDUM and **J. C. TREES,** accompanied by a party of officials of their holdings, are on a tour of the Gulf Coast oil section. In the party were the following: W. S. Hallanan, president, Plymouth Oil Company; J. L. Cleveland, Jr., vice president of Guaranty Trust Company, New York; W. M. Henderson, Pittsburgh, director, Plymouth Oil Company and Big Lake Oil Company; H. B. Davenport, Charleston, West Virginia, Plymouth Oil Company director; A. B. Dally, Jr., vice president, Plymouth Oil Company, and director in Big Lake Oil Company; A. F. Holliday, Pittsburgh, Plymouth Oil Company, director; Paul G. Benedum, Houston, director, Plymouth Oil Company; D. D. Johnson, Pittsburgh, director, Bik Lake Oil Company; W. E. Huston, Pittsburgh, secretary-treasurer of both Big Lake Oil Company and Plymouth Oil Company; J. C. Haplin, Pittsburgh, president, Colonial Trust Company; Colonel T. C. Davis, New York, Standard Statistics, Inc.; Howard Ingles, New York, member of firm Munds, Winslow & Potter; John A. Beattie, president, John A. Beattie Company, Pittsburgh; F. W. Miner, National Supply Company, Pittsburgh; J. F. Hardy, engineer, Plymouth Oil Company; W. M. Griffith, district general manager, Plymouth Oil Company, Sinton, Texas; C. William Campbell, attorney, Pittsburgh; and Sam Mallison, newspaper man of Charleston, W. Va.

ROBERT H. COLLEY has been elected president of Atlantic Refining Company, succeeding W. M. Irish who plans to retire. Colley was vice president and treasurer.



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The W-K-M Semi-Steel Gate Valve has all of those refinements of design and manufacture found in the W-K-M high pressure gate valve, such as (1) Less area exposed to pressure, (2) Through-conduit opening, (3) Seat faces not exposed to pressure or abrasion while in service, (4) Grease bath lubrication . . . and numerous other exclusive valve features.

The Semi-Steel type is made in 1600-pound and 2000-pound test pressures, for any kind of non-shock service.

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IN THE

Financial Field

Oil company securities perform well during period when general market declined.

* * *

Group report shows oil company earnings first quarter 84 percent up.

* * *

Gulf Oil Corporation 1936 earnings 150 percent above previous year.

SECURITIES of oil companies performed comparatively well in the recent sinking spell of the stock market. Along with stocks in the farm equipment and rail groups, the oils showed noteworthy resistance to the general declining tendencies.

Those optimistic toward the oil company securities had their views confirmed by this creditable showing, and now there is considerable hope that the oils will do particularly well if and when a general advance is resumed. Such hope apparently has been behind some of the recent buying of the oil company stocks, and the continuing firmness of the prices.

Meanwhile, the favorable attitude toward the oils is justified insofar as the industry's internal conditions are concerned. The industry's inventory position is relatively conservative, with crude and refined oil stocks more or less justified by the large consumer demand now existing. At least until June 1 the balance between crude production and demand will continue, moreover, as allowables for May are fairly well in line with the estimates of demand as determined by the Bureau of Mines.

First Quarter Results Good

By now enough oil companies have reported on first quarter results to give an indication of the general trend this year, as compared with last year.

These reports indicate that the oil companies in the aggregate will show for this year first quarter net profits around 50 percent larger than in the similar period last year.

Results are varying considerably, as between different companies, with some concerns showing more than 100 percent gains over last year, while others show more moderate increases.

Companies that operate on the Pacific Coast have shown exceptional improvement, as compared with last year. This reflects the fact that in the first quarter of last year prices on the West Coast were sub-normal, while this year the prices have been favorable.

For the oil companies in general, the better results this year are due primarily to the two factors, somewhat better prices for crude and refined oils, and larger volume of business, attending this year's all-time record consumption of oils.

Earnings Up 84 Percent

Carl H. Pforzheimer and Company lately issued a report in which it is stated that 14 oil companies for the first three months of 1937 had aggregate income of $44,002,924, compared with $23,918,823 in the similar period last year, an increase of 84 percent. It is pointed out, however, that this survey did not include many of the larger integrated companies, since such larger concerns do not publish quarter reports. Consequently, the 84 percent increase may not be considered as representative of the industry as a whole. The report said in this connection, "Indications are that earnings in general are some 30 or 40 percent above those of last year."

The 14 companies on which the Pforzheimer report was based included: Atlantic Refining Company, Barnsdall Oil Company, Continental Oil Company, Mid-Continent Petroleum Company, Phillips Petroleum Company, Plymouth Oil Company, Seaboard Oil Company, Shell Union Oil Company, Skelly Oil Company, Standard Oil Company of California, The Texas Corporation, Texas Pacific Coal & Oil Company, Tide Water Oil Company and Union Oil Company of California.

The companies of the Pacific Coast region are conspicuous among those showing gains of over 100 percent in earnings in the first three months of this year. Standard of California reported net income 167 percent larger than the first quarter of 1936. Union Oil of California showed a gain of 450 percent. Shell Union Oil, which, is heavily represented on the West Coast, had a profit in this year's first quarter 119 percent higher than in the corresponding period last year.

Increases of 50 to 90 percent in earnings, for the first quarter of this year compared with last year, were shown by Continental Oil Company, Phillips Petroleum Company, Skelly Oil Company, and The Texas Corporation.

Barnsdall Oil Company

The report of Barnsdall Oil Company and subsidiaries covering the first quarter of 1937 shows net profit of $591,155, after interest, depreciation, federal taxes, etc. This compares with $471,043 earned in the first three months of 1936.

Continental Oil Company

Continental Oil Company has reported for the first quarter of 1937 consolidated net income of $3,691,193, after usual charges, compared with $2,114,521 in the similar period last year. This year's figure represents profit of 79 cents a share, compared with 45 cents a share last year. In the first three months of 1935 the Continental Oil Company had net income of $940,807.

Skelly Oil Company

For the three months ended March 31, 1937, Skelly Oil Company and subsidiaries reported net profit of $1,534,413, after interest, depreciation, depletion, federal taxes, etc. This was nearly double the profit of the similar period last year, which amounted to $797,015.

Mid-Continent Petroleum Company

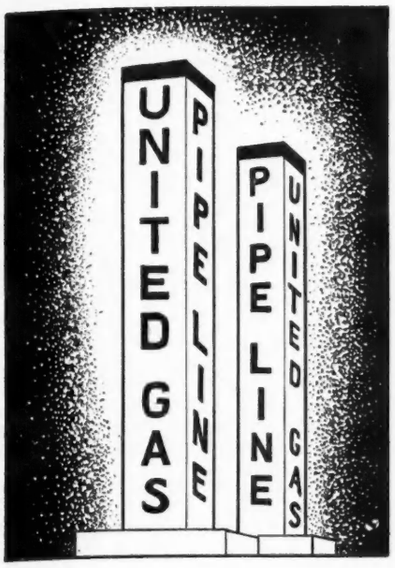
Mid-Continent Petroleum Company for the first quarter of 1937 reported net income of $1,233,025, which was about 30 percent more than the $942,659 earned in the first quarter of 1936. In the initial quarter of 1935 the Mid-Continent company reported a loss of $273,057. Directors of Mid-Continent Petroleum Corporation, in view of better earnings, have declared an interim dividend of 50 cents a share. A year ago the company paid a dividend of 40 cents a share, while at the end of 1936 it paid a final dividend of 75 cents a share.

Seaboard Oil Company

Seaboard Oil Company of Delaware and subsidiaries reported for the quarter ended March 31, 1937, net profit of $591,365, after federal income taxes, depreciation, depletion, amortization, intangible drilling and development costs, etc. This was 3 percent less profit than for the similar period last year when the company had net profit of $612,126. This decrease in earnings occurred despite the fact that Seaboard Oil Company in this year's first quarter had operating revenue, 11 percent greater than in the first three months of 1936. The less favorable showing was due to increased expense, and to exploration in foreign countries, as well as to a change in the method of showing inventories of oil on hand.

Standard of California

Standard Oil Company of California has reported for the first three months of 1937 net profit of $7,889,489, compared with $2,952,958 in the similar period last year. These figures are after



SENTINELS

OF UNINTERRUPTED SERVICE

UNDER the network of highways and railroads in the Gulf Coast country lies another network that no traveler ever sees—the United Gas pipeline system which delivers Natural Gas to your community for *your* use.

• These pipelines cross the highways at literally thousands of points. At every such crossing, on both sides of the road are concrete markers, 4″ x 4″ and about two feet high, painted bright red. They are the Sentinels of Uninterrupted Natural Gas Service.

• These Sentinels silently convey this message to the road crews and repair gangs:

• "A Natural Gas pipeline of the United Gas System crosses here. Thousands of homes and industries are depending on a continuous flow of gas through this pipe. Do not interfere with this service!"

• When you drive in the country again, you may see these white or black-topped red markers at the roadsides as you pass. If you have time to examine them, you will read in the inset letters, "United Gas" and "Pipeline"—legends that are inseparably linked with the principle for which the road markers stand — Uninterrupted Natural Gas Service!

• Protection of the System's pipelines is achieved at no trifling cost. Yet it is only a part of the total cost of operating a dependable Natural Gas Service.

UNITED GAS SYSTEM

NATURAL GAS • THE MATCHLESS FUEL FOR HOME AND INDUSTRY

usual deduction, depreciation, depletion, amortization, provision, and normal federal income taxes, etc.

Houston Oil Company

Houston Oil Company of Texas and subsidiary, Houston Pipe Line Company, reported for the first three months of 1937 a net profit of $469,366, after usual deductions, compared with $134,925 for the similar period last year.

Pacific Western Oil Corporation

Pacific Western Oil Corporation for the first three months of this year has reported net profit of $269,007, after abandonments, depletion, depreciation, amortization, federal income taxes, interest, intangible cost, etc. This compared with $323,506 profit in the first quarter of 1936.

Eason Oil Company

Eason Oil Company has reported for the first three months of this year net profit of $39,323. This was the equivalent of 12 cents a share on the common stock, after deduction for preferred stock dividends.

Bishop Oil Corporation

Bishop Oil Corporation has issued a statement to the effect that the company for the first quarter of 1937, had gross income of $184,599 from the sales of crude oil. The company's net profit for the period, after all charges, including reserve for normal federal income taxes, was $72,396, or 20 cents a share. The Bishop Oil Corporation produces crude oil in California, Oklahoma and Texas.

Panhandle Producing & Refining Company

Panhandle Producing & Refining Company and subsidiaries have reported for the three months ended March 31, 1937, net income, accrued to the company, of $36,343, compared with $30,430 in the first quarter of 1936.

Phillips Petroleum Company

Phillips Petroleum Company reports for the first quarter of 1937 net profit of $5,615,534 after federal income taxes, interest, depreciation, depletion, etc. This compared with $3,156,159 for the similar period in 1936, and with $1,542,335 in the first three months of 1935.

Directors of Phillips Petroleum Company have declared an extra dividend of 25 cents a share on the common stock in addition to the regular quarterly payment of 50 cents. These dividends are payable June 1 to stockholders of record May 7.

Texas Corporation

The Texas Corporation will show for the first quarter of 1937 net profit of approximately $1 a share. This would represent an increase of about 90 percent over the earnings in the initial quarter last year. The profit was the equivalent of about 60 cents a share in the first quarter last year, and the company now has a greater number of shares outstanding.

Oklahoma Natural Gas Company

Oklahoma Natural Gas Company and subsidiaries reported for the 12 months ended March 31, 1937, net income of $1,002,390, after depreciation, interest, federal income, etc. This compares with net income of $1,030,511 in the previous year.

Standard of Indiana

At the recent annual meeting of stockholders of Standard Oil Company (Indiana), Edward G. Seubert, president, stated he was "hopeful" that profits so far this year have been as good or better than for the similar period last year.

"Volume has been showing some improvement," he said, "but of course we are paying more for crude oil and labor."

The Standard of Indiana company proposes to spend this year on properties about the same amount as the $49,915,649 capital outlay for 1936.

Gulf Oil Annual Report

Gulf Oil Corporation and wholly owned subsidiaries reported for 1936 consolidated net income of $26,356,003, equivalent to $2.90 a share on the capital stock outstanding at the close of the year, on the new basis, after paying the 100 percent stock dividend. That was the best showing since 1929 and represented an increase of approximately 150 percent over the 1935 net income of $10,551,720. The increase reflected primarily the greater volumes of business, as there was little improvement in actual realized prices for products.

Crude oil production of the Gulf companies was greater in 1936 than in the preceding year, but within the year, there was a net addition to the company's recoverable crude oil reserves. The company has production in Oklahoma, Kansas, Texas, New Mexico, Louisiana, Arkansas, Michigan, and California, and in Venezuela and Mexico.

Increased sales are reflected in the fact that the gross operating income of the Gulf companies was 18.5 percent higher in 1936 than in 1935. The sales volumes were higher for practically all refined products, particularly fuel and gas oil, gasoline, and lubricating oils.

The annual report of the Gulf Oil Corporation pointed out that while the company's volume of business continues to increase, the improvement in prices realized for products is not yet commensurate with the increased cost of labor, materials, and taxes.

Consolidated Royalty Company

The nineteenth annual report of The Consolidated Royalty Oil Company, Casper, Wyoming, shows that for 1936 the company had net income of $93,890.

Oil Conference

[*Continued from page 12*]

equalization of seasonal peaks and meeting competition for the cooking load were described as the principal "Sales Problems of the Natural Gas Industry," by B. H. Gardner, Columbus, Ohio, sales director of Columbia Gas & Electric Company. Outlinging the changes that have come about in supplying natural gas, Gardner said:

"At first we had a supply of natural gas that was a by-product of oil production; a supply close to market; no investment in compressor stations; practically no investment in transmission lines; a minimum investment in distribution lines installed on unpaved streets by labor that at that time was paid low wages; no operating costs for well tenders or for compressor stations; no cost for reserve acreage; a minimum distribution cost with no meter or meter reading costs and with all billing on a flat rate basis; and practically no taxes.

"Compare these conditions with conditions existing today. Gas is no longer a by-product of oil production but a supply is obtained only as a result of drilling special wells and at high costs; sources of supply are far removed from the markets, necessitating large investments in compressor stations and transmission lines; present-day distribution lines are installed and maintained under paved streets, subject to present-day traffic conditions and by labor that is paid wages much higher than formerly paid; high labor costs are of necessity incurred for well tending and the operation of compressor stations and in the inspection and maintenance of long transmission lines; large reserves in undeveloped acreage are an absolute necessity in order to insure an adequate supply of natural gas for a reasonable length of time and such reserves are carried only at great expense; accounting costs are much higher since all service is now necessarily on a metered basis, and since state and federal laws require such extensive records and reports; and taxes are now a heavy burden on all utilities, in many cases taking as much as 15 percent of the total gross revenue."

Reflection Seismograph Successful

Reflection seismography has been applied successfully in the Appalachian region despite the fact that it offers subsurface structures much different from those encountered in Mid-Continent fields where it was developed, L. E. Randall, Charleston, W. Va., of Geophysical Exploration Company, said in his paper on "Geophysical Prospecting for Natural Gas." Approximately 3500 square miles of West Virginia, roughly half of the producing area of that state, has been explored seismographically, Randall said. He described the variable subsurface characteristics of the Appalachian region and the impossibility of correlation, illustrating his discussion with numerous graphs. Many of these variable factors are overcome by the inclusion of corrective factors in computations, Randall said. He also presented a number of pictures illustrating the difficulties encountered by geophysical crews in the eastern fields.

Markets Unchanged

BUT EXCESSIVE PRODUCTION MAKES THEM SENSITIVE

THE oil industry's markets have continued largely unchanged in the past week, but caution has become the watchword, as prices apparently are becoming sensitive to continued excessive crude oil production, unprecedented refinery activity, and present record inventories of gasoline.

In some instances, last week, prices lost ground. For example, Standard Oil Company of Ohio, effective May 5, reduced its wholesale and retail gasoline prices throughout the state by one half cent a gallon, after having kept in effect an increase of that amount for less than a week.

Effective May 10, Standard Oil Company of New Jersey has reduced its price for Esso or Ethyl grade gasoline to tank wagon dealers in New Jersey, Maryland, and the District of Columbia one half cent a gallon. The company also reduced the price for that grade to tank car buyers and jobbers in the same area ¾ cent a gallon on the same date. The changes mean the establishment for that grade of a 1½ cent differential over Essolene to tank wagon dealers and 1¼ cents differential to tank car buyers and jobbers.

Crude Raise Less Likely

There has been some further talk of a possible raise of crude oil prices. But such a possibility appears rather remote, in view of the continued excessive crude production. The latest report of the Bureau of Mines revealed that in the week ended April 24 nearly 2,000,000 barrels more of crude oil went into storage, because the market did not absorb it. That was the thirteenth consecutive week in which production was excessive and resulted in the running of crude to storage. Within the 13 weeks, the nation's stocks of crude have been increased over 15,000,000 barrels.

Gasoline inventories lately have been reduced somewhat, but they are about 12 percent greater than at this time last year. Such an increase in gasoline stocks is not fully justified, as gasoline demand has been running only about 10 percent higher than last year.

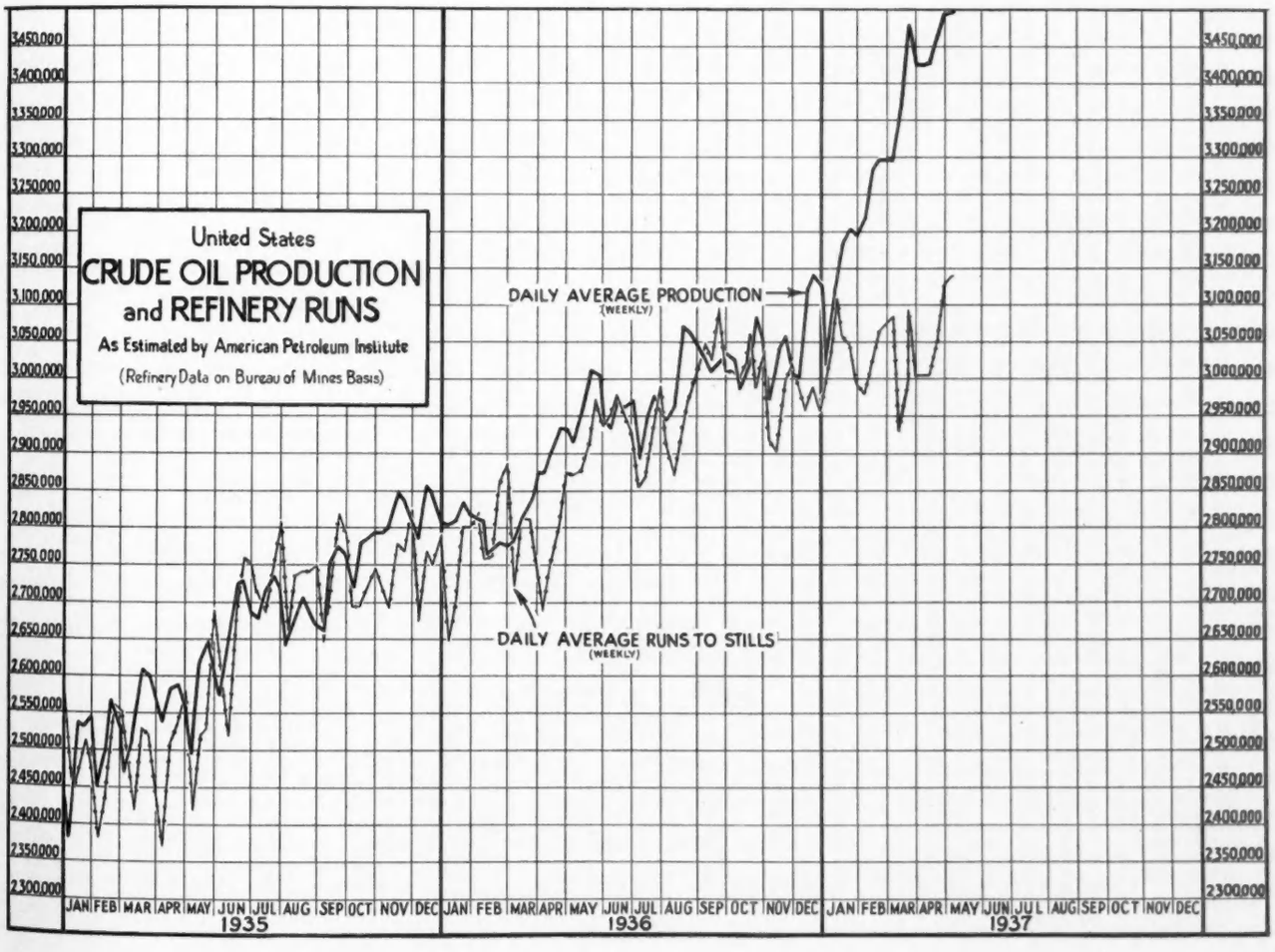
Refinery Prices

Refinery prices in the Mid-Continent late last week were largely the same as a week before.

U. S. motor gasoline f.o.b. Oklahoma refineries was ranging from 5⅛ to 5¼ cents a gallon for the 62 octane and below, around 5½ cents for the 63 to 67 octane, and from 6⅛ to 6¼ cents for the 68 to 70 octane material.

Corresponding prices in the Chicago market were: 5⅛ to 5¼ cents, 5⅜ to 5½ cents, and 5⅞ to 6⅛ cents a gallon.

At the East Texas refineries the usual



60-62, 400 end point gasoline was priced from 5¼ to 5⅜ cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 4¼ to 4⅜ cents a gallon for the 41-43 water white grade, and from 4⅜ to 4½ cents for the 42-44 water white grade. The Chicago prices were one eighth cent lower than the Oklahoma prices.

CRUDE PRICES

Complete table of prices paid for crude oil at the well in principal fields will be found on page 134 of The Oil Weekly, May 3. Hereafter this schedule will appear only in the first issue of each month except when changes are announced.

INCREASE PLANTS

Panhandle gasoline and black makers active

Pampa, Texas.—Production of natural gasoline and carbon black in the Texas Panhandle is destined to record a series of gains during the remainder of the year as a result of plant construction work underway in the district. Carbon black output will likely reach a new peak level during the current year, with one plant being enlarged to handle a record volume of 95,000,000 feet of natural gas daily.

Forty-four active natural gasoline plants in the district produced 21,865,000 gallons during March, or 353,000 gallons above the yield recorded the previous month. Moore County gained a new plant the past week when Magnolia Petroleum Company began operating a well pressure absorption type unit, rated at 50,000,000 feet daily. It is located in NE Section 170, Block 3-T, T. & N. O. Ry. Survey, near the center of a large block of leases held by the company. Portion of the equipment was derived from the company's abandoned natural gasoline plant in the Shamrock area, Wheeler County.

Shamrock Oil & Gas Company, Amarillo, has invaded the retail gasoline market at Amarillo and other Panhandle points following completion of the Butane-Polymerization cracking unit, which operates in conjunction with its 230,000,000-foot daily capacity natural gasoline plant on the McKee tract, Section 399, Block 44, H. & T. C. Ry. Survey, Moore County. The cracking unit is due to produce about 10,000 gallons daily of high-octane motor fuel from the higher fractions and gases that could not be handled by the original equipment in the McKee plant. The company is reported to have negotiated a contract to process natural gas in the McKee plant to be delivered by Shell Petroleum Corporation and Sinclair Prairie Oil Company, and the latter will abandon plans, calling for the joint construction of a 65,000,000-foot natural gasoline plant. Site had been acquired in S½ SE Section 176, Block 3-T, T. & N. O. Ry. Survey, and Columbian Carbon Company was scheduled to erect a carbon black plant to burn the residue gas.

Columbian Carbon Company will have one of the largest carbon black plants in active service when expansion work is completed on its plant in E½ Section 400, Block 3-T, T. & N. O. Ry. Survey, Moore County. The plant is currently handling about 34,000,000 feet of residue gas daily delivered by Shamrock Oil & Gas Company on a long-term contract, and will immediately add sufficient units to boost the capacity to 95,000,000 feet daily.

Continental Carbon Company, formerly listed as Witco Carbon Company, Houston, was due to attain maximum production the past week, with a rated capacity of 85,000,000 feet of gas daily. It is owned jointly by Continental Oil Company, R. I. Wishnick of New York City and Shamrock Oil & Gas Company, and a portion of its gas supply is furnished by the latter concern's McKee plant. This carbon black plant is located in SE Section 440, Block 44, H. & T. C. Ry. Survey, Moore County, and began operating at part capacity last February.

Four carbon black plant construction and enlargement projects for the Panhandle are to be given a hearing before the Texas Railroad Commission at Austin on May 10. Moore Carbon Company, a new concern, has applied for permit to erect a plant in Moore County. J. M. Huber Corporation, Borger, and Better Blacks, Inc., Pampa, have filed application to increase the output of their respective plants. Cabot Carbon Company, Pampa, proposes to erect a new plant in the district.

Weekly Trends of United States Production and Stocks

(Figures American Petroleum Institute, except crude stocks, Bureau of Mines)

WEEK ENDED—	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stock (Barrels)
January 2, 1937	3,121,400	3,030,000	287,659,000	62,661,000	106,330,000
January 9	3,117,800	3,110,000	286,912,000	65,402,000	105,971,000
January 16	3,184,650	3,045,000	286,044,000	66,559,000	104,841,000
January 23	3,205,150	3,055,000	285,211,000	68,180,000	103,441,000
January 30	3,194,050	2,995,000	285,384,000	69,540,000	102,078,000
February 6	3,220,750	2,980,000	286,116,000	70,535,000	101,136,000
February 13	3,286,050	3,020,000	286,158,000	73,585,000	100,735,000
February 20	3,295,950	3,065,000	287,574,000	74,798,000	99,391,000
February 27	3,296,100	3,085,000	288,121,000	78,786,000	99,534,000
March 6	3,298,800	2,930,000	289,611,000	80,102,000	99,115,000
March 13	3,372,850	2,985,000	290,613,000	81,236,000	98,964,000
March 20	3,448,150	3,095,000	291,555,000	81,623,000	97,287,000
March 27	3,431,300	3,060,000	293,587,000	*83,538,000	96,591,000
April 3	3,422,350	3,005,000	297,374,000	83,157,000	95,805,000
April 10	3,426,300	3,005,000	297,468,000	82,579,000	94,581,000
April 17	3,463,550	3,055,000	298,932,000	82,703,000	94,472,000
April 24	3,496,400	3,125,000	300,737,000	82,303,000	94,100,000
May 1, 1937	*3,497,450	*3,140,000	.....	82,273,000	94,530,000
May 2, 1936	2,918,450	2,875,000	314,192,000	72,964,000	96,709,000

*All-time peak.

Summary of Wells Completed in the United States Week Ending May 8, 1937

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1937	Total this Date 1936
Alabama	....	....	....	....	.....	1	2
Arkansas	....	....	....	....	.....	26	31
California	33	26	....	7	15,720	451	315
Colorado	....	....	....	....	.....	6	5
Florida	....	....	....	....	.....	....	....
Illinois	....	....	....	....	.....	20	4
Indiana	....	....	....	....	.....	44	87
Kansas	44	30	2	12	46,810	794	528
Kentucky	....	....	....	....	.....	61	85
Louisiana	27	15	1	11	5,133	259	354
Michigan	11	7	1	3	8,936	270	243
Mississippi	....	....	....	....	.....	6	2
Montana	2	1	....	1	100	34	34
Nebraska	....	....	....	....	.....	....	....
New Mexico	16	16	....	....	41,037	242	172
New York	....	....	....	....	.....	3	....
Ohio	10	6	3	1	68	518	706
Oklahoma	86	59	5	22	88,360	1,067	922
Pennsylvania	5	2	3	....	150	60	....
Texas	352	266	9	77	303,679	5,054	4,229
Utah	....	....	....	....	.....	....	....
West Virginia	26	6	17	3	70	310	253
Wyoming	3	3	....	....	4,690	37	16
Total this week	615	437	41	137	514,753	9,263	7,987
Total last week	525	379	33	113	522,150	....	....
Total this year	9,263	6,307	788	2,168	7,941,286	....	....

Comparison of Permits Granted for New Wells

STATE	Week Ending May 8	Total this Mo.	Total this Year[1]	Total this Date Last Year	1936 Year Total
Arkansas	6	9	65	34	103
California	32	67	521	317	1,054
Louisiana	28	69	361	421	1,107
Kansas	76	146	904	621	1,573
Michigan	21	50	332	221	762
Oklahoma	66	140	1,028	1,080	2,594
Texas	321	586	6,122	4,838	15,582
Total	550	1,067	9,333	7,532	23,075

Larger Oil Yield

U. S. PRODUCES OVER 3½ BILLION FOR FIRST TIME

UNITED STATES crude oil production in the past week, ended May 8, again established an all-time peak, rising for the first time above 3½ million barrels a day. Last week's output averaged 3,500,400 barrels daily. That was 16,225 barrels a day more than the production in the previous week, and 167,600 barrels a day more than the market demand as estimated by the Bureau of Mines.

This continuation of record production represented an unfavorable development, in view of the fact output has been excessive for over three months, with substantial quantities of crude going into storage each week.

The gain over the previous week's production rate resulted from increases in Texas, New Mexico, California, and Louisiana, that outweighed decreases in Oklahoma and Kansas.

Due to completion of additional wells and some increases of field allowables effective May 1, Texas production last week was 11,500 barrels a day higher than in the previous week, averaging 1,394,400 barrels daily. That was 53,600 barrels a day more than the market demand as estimated by the Bureau of Mines.

New Mexico's higher allowables as of May 1 were reflected in the state's increase of 6500 barrels, to 112,300 barrels daily, although the new quotas will not be fully evidenced in the production figures until a week later. This output of New Mexico was 12,500 barrels a day above the Bureau of Mines recommendation.

California output was up 23,000 barrels at 643,000 daily, which was 59,700 barrels a day in excess of the federal allocation.

Louisiana showed a 2275-barrel increase in averaging 252,825 barrels daily. That was 3425 barrels a day more than the federal allocation.

Oklahoma last week averaged 645,150 barrels daily, or 20,450 barrels a day less than in the previous week and 22,450 barrels a day more than the Bureau of Mines estimate of demand.

Kansas production was down 12,125 barrels, at 186,225 barrels daily. That was 875 barrels a day less than the federal quota.

Gasoline Contract

Longview, Texas.—East Texas Refining Company, largest producer of gasoline in the East Texas field, has contracted to sell Standard Oil Company of Louisiana 1000 barrels of gasoline daily. Deliveries on this contract began May 4. The former constructed 8000 feet of 4-inch welded line from its refinery at Longview junction to deliver the motor fuel to Humble Pipe Line Company's booster station, and the latter mixes the gasoline with low-gravity crude from the Talco field. The mixed products are relayed to the Louisiana border via Humble Pipe Line Company's 10-inch carrier on consignment to the purchaser's refinery at Baton Rouge.

Austin.—The Texas senate has passed a resolution by Senator Weaver Moore of Houston authorizing the governor of Texas to withdraw the state from the Interstate Oil Compact if he finds that Texas does not get a fair share of the allowable allocated between the various oil producing states which are members of the compact.

The compact as ratified does not attempt to fix allowables.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in May)	ACTUAL PRODUCTION: BARRELS DAILY FOR WEEK ENDING May 8	May 1
TEXAS—			
Texas Panhandle	.....	80,200	76,400
North Texas	.....	70,600	70,500
West Central Texas	.....	32,900	32,800
West Texas	.....	200,300	199,400
East Central Texas	.....	119,700	114,800
East Texas Field	.....	460,100	459,100
South Texas	.....	230,400	227,600
Texas Gulf Coast	.....	200,200	202,300
Total Texas	1,340,800	1,394,400	1,382,900
OKLAHOMA—			
Oklahoma City	.....	173,300	174,525
Seminole Area	.....	130,825	131,750
Crescent	.....	12,600	14,825
Lucien	.....	14,300	14,500
Fitts	.....	83,450	96,500
Edmund	.....	18,375	19,000
Moore	.....	12,050	15,825
Others	.....	200,250	198,675
Total Oklahoma	622,700	645,150	665,600
KANSAS—			
Ritz-Canton	.....	5,500	5,550
Chase	.....	7,575	10,425
Hollow-Nikkel	.....	3,700	3,750
Sedgwick	.....	3,825	3,925
Burrton	.....	16,525	16,350
Lorraine	.....	6,450	6,475
Russell County	.....	28,500	29,075
Silica	.....	15,450	21,025
Others	.....	98,700	101,775
Total Kansas	187,100	186,225	198,350
LOUISIANA—			
North Louisiana	.....	74,425	73,350
South Louisiana	.....	178,400	177,200
Total Louisiana	249,400	252,825	250,550
ARKANSAS	28,500	27,100	27,075
CALIFORNIA—			
Long Beach	.....	61,000	61,000
Santa Fe Springs	.....	45,000	44,000
Huntington Beach	.....	39,000	38,000
Dominguez	.....	25,000	22,000
Inglewood	.....	14,500	13,500
Ventura Avenue	.....	35,000	35,000
Seal Beach	.....	9,500	9,000
Midway-Sunset	.....	73,000	66,000
Elwood	.....	9,000	9,500
Kettleman Hills	.....	78,500	80,000
Mountain View	.....	19,500	20,500
Playa del Rey	.....	9,000	9,000
Others	.....	418,000	212,500
Total California	583,300	643,000	620,000
MOUNTAIN STATES—			
Wyoming	49,000	52,700	53,200
Montana	15,200	16,800	16,300
Colorado	4,800	4,600	4,400
Total Rocky Mountain States	69,000	74,100	73,900
NEW MEXICO	99,800	112,300	105,800
EASTERN STATES	117,400	118,600	114,800
MICHIGAN	34,900	46,700	45,200
Total United States	3,332,900	3,500,500	3,484,175

WORLD DEVELOPMENT and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

Two Fields Loom

WILDCATS ON WESTERN CANADA STRUCTURES ARE READY TO TEST

TWO important West Canadian wildcats bailing as the week closed, have production tests scheduled for this week. Arca Development Company's test on the High River-Aldersyde structure, Alberta, deepest in the British Empire, halted drilling at approximately 9000 feet. Clearing the hole of rotary fluid was started late Friday, with a test expected early in the week. Frequent rumors of crude oil and gas showings at the test have never been given official confirmation.

The Arca test is located on a very large unproven structure. The test is being undertaken by the Imperial Oil Company, Limited, the C. & E. Corporation and interests associated with the Canadian Western Natural Gas, Light, Heat and Power Company, Limited. Besides these companies, interests holding acreage on the structure are Graystone Consolidated Petroleums, Limited, Alco Oils, Limited, Anglo-Canadian Development and Holding Company, Limited, Davies Petroleums, Limited, and others. Graystone holds two subdivisions near the Arca well, Legal Subdivision 9 and 15 of Section 20, Township 18, Range 29; Alco Oils holds 240 acres northwest, northeast and southeast of the deep test; Anglo-Canadian completed a deal last week whereby it acquired 3000 acres between the Arca Well and the Ranchmen's Petroleums test on Legal Subdivision 16, Section 13, Township 20; while Davies Petroleums holds a permit covering 10,000 acres northwest of the Arca well.

Pincher Creek Bailing

The second wildcat commanding interest was that of Weymarn Petroleums, Limited, on the Pincher Creek structure, Legal Subdivision 5, Section 7, Township 6, which also would open large acreage in case of a strike. Bailing started late Saturday. The rotary mud caked above the cement plug, making it necessary to bail practically all the mud above the plug at about 4200 feet before the plug could be drilled through. Depth of the well is 5950 feet. It was started in 1929 and gas and oil showings were encountered many times while the well was being drilled.

Of the more than 30 active Turner Valley wells, Richland Oil Company's No. 3 will be the next to reach the test stage. It is drilling below 5500 feet with completion hoped for within 10 days. On Legal Subdivision 14, Section 28, Township 18, it is located near the three largest crude producers of the field—Turner Valley Royalties well, B. & B. Royalties well, and Royalite Oil Company's Sterling Pacific 4. Nearby, Richland's No. 1 was drilling at 2250 feet and Richland's No. 2 at 3650 feet.

Monarch Royalties, Ltd.'s test encountered the Cardium sandstone at 4070 feet, indicating that the west flank of the Turner Valley structure does not dip sharply in the extreme south end of the field. Location is Legal Subdivision 9, Section 20, Township 18 and the well was drilling below 4150 feet as the week closed. Monarch reached the Cardium at nearly 200 feet shallower depth than at Foundation Petroleums, Ltd.'s producer, located just southeast. The limestone, likewise, should be reached at a lower depth unless still lower horizons prove exceptionally thick.

To Shoot South Flank Test

Newfold Royalties, Ltd.'s test, Legal Subdivision 11, Section 21, Township 18, in the extreme south end of Turner Valley, completed as a small producer, was given acid treatment a week ago which increased the gas flow by more than 1,000,000 feet. Operators, however, are not satisfied, and the well will be shot with 600 quarts as soon as a qualified shooter can be brought from Montana.

Plans were also made to shoot Sunshine Oil Company, Ltd.'s well on the Del Bonita structure, in the extreme south of Alberta, and the original plan to acidize the well was discarded.

Anaconda Oils, Limited, announced plans to spud in a rotary-drilled well on or before May 25 on the Steveville structure in Alberta. Contract for the well, to be known as Anaconda-Steveville 1, has been let to the Union Drilling & Development Company, Limited. Location will be in the heart of the structure as chosen by the late Dr. Dawson in 1884 and Dr. Elliott in 1914 and confirmed by other geologists. Anaconda holds 1740 acres on the structure, part of this company's total of 6631 acres on 17 different structures.

Two tests of West Turner Petroleums on the west flank of Turner Valley are to be underway shortly. A rotary rig and other equipment is to be hauled shortly to the company's 80-acre lease in Section 32, Township 18, Range 2, west of the fifth.

Drilling on Mar-Jon Oil Company's test on Watson structure, 50 miles south of Turner Valley, is to be resumed late this month, according to E. M. Craig, Mar-Jon president. Drilling had been suspended for some time at 5308 feet, where there was a gas flow of about 500,000 cubic feet a day. It will be completed with rotary equipment.

Whither Mexico?

STRIKE POSSIBILITY DISCOUNTED BUT PERMITS STILL REFUSED

THOUGH conversations between oil capital and labor are not prospering (they have been virtually deadlocked for a month), informed oil men discount rumors to the effect that the whole controversy is headed for a general strike in Mexico, at least in the immediate present.

It is pointed out that the strike is now out of the question, as the truce which brought about the conversations and contained the pledge that there would be no tieup of the industry in its duration has to run until nearly the end of May.

When this term expires it is not likely that the rumored strike will begin. The inside opinion is that President Cardenas of Mexico would not countenance the disruption of so vitally important an industry as oil, as it affords a large part of his government's

revenues, income which is much needed to enable the administration to carry on to completion the great public works program it has undertaken, which includes railroad, highway, irrigation and school constructions, and involves an outlay of upward of 200,000,000 pesos (about $56,000,000) between now and 1940.

Labor, it is learned, is hampering progress of the conversations by insisting upon the immediate acceptance of contract clauses providing higher wages and liberal allowances for overtime and vacations.

To Conclude May 27

President Cardenas has requested oil companies and labor involved in conversations intended to bring about a single work contract for the country to speed up these conversations in order that they may be concluded by May 27. Both parties have pledged cooperation in this respect.

The president's seeming anxiety to have the labor discussions terminate in a contract which will be enforced by the government to insure uninterrupted function of the oil business, as well as equitable treatment for the companies and employees, and the failure of the department of petroleum to act in the past few months on routine permit applications from private enterprise for permits to drill, et cetera, present a paradoxical situation.

Petroleum Department Paralyzed

So far as taking action on requests of private companies for permits to drill and carry on their work, the petroleum department of Mexico has been paralyzed since about December 6, 1936. As a matter of fact, concessions and transfers of concessions have not been issued, except in one or two cases of minor importance, since the beginning of the present administration.

Records show that applications for confirmatory concessions covering constitutional rights of some of the principal companies of Mexico have been pending for from over seven to nearly 11 years. Many of these applications are supported by sufficient evidence of title and evidence of performance of positive acts prior to the constitution of May, 1917, manifesting intent to make use of the underlying petroleum resources. They are supported by evidence that they should be issued, subject only to administrative examination of the proof submitted.

The requested but delayed action would be in accordance with legislation on the subject and the jurisprudence of the supreme court of Mexico, it is said. It would also be in accordance with assurance given by the government of Mexico to the United States department of state. Some of the properties affected are producing. From many of them large quantities of oil have been removed. Other properties affected are of highly prospective value.

Some Pending Since 1926

It is generally agreed among the Mexican lawyers that the country's petroleum law is correctly interpreted to mean that ordinary concessions should issue covering "free lands" on priority of application, and that so-called "preferential" concessions should issue on proof of the execution of any contract for petroleum purposes after May 1, 1917, but prior to December 26, 1925, the date of the petroleum law. In many cases, applications for ordinary and preferential concessions have been pending since early in 1926.

Passive Resistance

Authorities have not rejected these applications. They have simply taken a completely negative, or inactive, position for which no reason has been assigned. They receive the applications, but take no action on them one way or the other. In this connection, there is no procedure in Mexican courts analogous to mandamus proceedings in the United tates, but, the constitution of Mexico does provide that the officials and public employees shall respect the right of petition. . . . and that a petition requires a written reply from the authority to which it may have been directed, and that the authority has the obligation to advise the petitioner within a reasonable period.

Concessions Diminished

This policy has brought about a great decrease in the area held under concession. As of April 1, 1934, the 1682 concessions in force covered 10,813,000 hectares of land (one hectare equals 2.47 acres), even though prior to then 470 concessions covering 6,649,000 hectares had been cancelled or relinquished. By May 1, 1935, the area of concessioned lands had been reduced to 8,179,207 hectares. Since May 1, 1935, the total hectares relinquished or cancelled would probably be slightly in excess of 2,000,000, pulling the concessions available for exploitation by private enterprise down from something in excess of 16,000,000 hectares prior to April 1, 1934, to something less than 7,000,000 hectares today.

It is understood that most of the land retained under concession today is in the hands of owners financially unable to develop it. In most instances, their only hope of realizing anything from petroleum concessions is to transfer them to a financially sound operating company for a cash consideration and a part of production that may be obtained.

Simply Does Not Act

But the government simply declines to authorize such transfers. There is no provision of law in Mexico that inhibits such operations, but the regulations of the law do provide that transfers of the concessions, in whole or in part, must be approved by the secretariat of the national economy.

No drilling permits, except to the government's now defunct company Petromex, have been issued since early December, 1936, notwithstanding the right to drill is explicitly conveyed in all concession titles. The petroleum agencies of the government in the fields are authorized to grant permits on application therefor without previous consultation with the central government authorities, except when the first permit on a concession is applied for. This authority is now inoperative and the department itself simply does not act on the applications referred to it.

Even permits to conduct exploration work, such as geophysical surveys, are not granted, notwithstanding the government regulations stipulate that, on compliance with the technical dispositions, such permits must be issued by the petroleum agencies within a period of eight days from the date of application.

It is reported that the only excuse given the oil companies for blocking continuance of activity in Mexico's oil industry is that on order from President Cardenas no transfers, no concessions, and no permits shall issue. No one seems to be in a position to say how long this situation will exist or why it exists.

Lack Explanation

But the situation reflected in the above paragraph presents private oil enterprise in Mexico with another problem. It is wondering how it can reconcile the above reported attitude of the country's chief executive with a statement to the effect that he was expected shortly to order modification of the government petroleum law (see The Oil Weekly of April 26) which would limit the government's integrated oil company which succeeded Petromex to supplying oil and oil products to official and semi-official enterprises only, thus preventing it constituting competition with private operators.

MEXICO

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Ohio Mex Oil Corp., Ejidos de Camargo, Tamaulipas state Rancherias 4	¶4	2295
Richmond Pet. Co., Moloacan, Vera Cruz Cuichapa 5	567	2108
Explotadora de Yacimientos Petroliferos, S. A. Panuco, Vera Cruz Tanchicuin 5	*	1985
Hamilton y Devine, S. en C. Altamira, Tamaulipas state Delgado 5-A	*	1936

*Failures; †Junked; ¶Million cu. ft. gas.

ARGENTINE WILDCATS

The second and third wells of Ultramar S. A. P. A. (The Texas Company) in the Province of Salta, about 100 miles south of production at Lomitas and Agua Blanca, in Argentina, have not yet reached a stage where they have developed information of interest.

The first well, drilled on the Rio Dorado, was abandoned below 1300 feet after developing a flow of 10,000 barrels daily of warm fresh water.

The second well, No. 289G, which is located on La Cruz structure, Province of Salta, District of Anta, north of Rio Pasaje, is down 1500 meters and has a fishing job. No. 380U, Province of Salta, Department of Campo Santa, is drilling ahead below 400 meters. This well is 40 miles west of 289G.

TRINIDAD YIELD UP

Production of crude oil in Trinidad in March amounted to 1,278,319 barrels, a substantial increase over the 1,081,191 barrels produced on the island in March, 1936, according to word received from R. S. Mackilligin, inspector of mines and government petroleum technologist.

OKLAHOMA FIELDS

J. Paul Getty extends Fitts production north.

* * *

Wildcat east of Kinta slated to go to 7000 feet.

* * *

Logan County test shows; pulls tubing to shoot.

Tulsa.—Northern extension of the Fitts field of Pontotoc County; a new wildcat in the Ada district of the same county; a venture in Haskell County and sudden developments in the Airport pool near Tulsa were some of the interesting news items in this sector last week.

J. Paul Getty's Masters 4, SW SE NW 23-2n-7e, came in to produce from the Hunton lime, extending the Fitts field to the north. Top of the lime was found at 3773 feet, and the well flowed 483 barrels of oil in one hour and made an estimated 15,000,000 cubic feet of gas. It was being tested.

Minnehoma Oil & Gas Company and J. Paul Getty's Masters 3, NWc SE 23-2n-7e, was washed in and flowed approximately 150 barrels of oil per hour with an estimated 8,000,000 to 10,000,000 cubic feet of gas. It was opened May 4 for an hour and was cutting 6 percent salt water and was again shut in.

Another new and interesting wildcat is being started in the Ada district of Pontotoc County at Summitt Drilling Company's Whitaker 1, CNW NE SE 31-4n-6e, a half-mile west of Ada. The well is also midway between the Fitts field and the Beebe pool, and on a direct northwest-southeast trend paralleling the axis of the Hunton arch. Formation in the area are said to be strikingly similar to those in the Fitts field. Contract depth is 4000 feet, to the Wilcox sand. The Bromide formation of the Fitts field is expected at around 3400 feet.

An important wildcat test is underway at Continental Oil Company's Anderson 1, SW SE NE 33-8n-20e, east of Kinta in Haskell County, and is prepared to go to 7000 feet in search of production. Companies interested in the test gave the area a thorough study which lasted for more than two years before starting operations. Several major companies are supporting the test, and have leased more than 9000 acres in the immediate vicinity.

From the Jesse pool in Pontotoc County came word that some production was underway at Mid-Continent Petroleum Corporation's Statler 2, NE SE SW 2-1n-7e. The well topped the first Bromide sand at 4507 feet where it made an estimated 4,000,000 cubic feet of gas and no oil. At 4511 feet the gas increased to 6,000,000 cubic feet, and at 4516 feet, gas production jumped to 12,000,000 cubic feet and the well started flowing. Drilled to 4525 feet, it found soft sand and flowed 140 barrels of oil the first hour; 140 barrels the second hour and 125 barrels the third hour. The sand hardened and the well was last reported drilling below 4531 feet.

One of Best at Airport

In the Tulsa Airport pool, C. P. Parsons' Bertha Arnold 1, south half of lot 4, block 14, Fairland addition, after topping the Bartlesville sand at 1076 feet, drilled to 1096 feet and was given a shot of 130 quarts, following which it came in to gush high over the 80-foot mast of the drilling machine. When last reported, the well was cleaning out after running casing. It is believed it will be completed as one of the best in the field.

J. E. Crosbie's Burris 1-C, NE SE NW 27-2n-7e, in the Fitts field, was brought in last week and is said to be the most productive Cromwell sand well in the pool. Top of the Cromwell sand was found at 2422 feet and the well made three flows of oil amounting to 45 barrels in one hour while drilling at 2445 feet. It was carried ahead to 2558 feet and flowed 330 barrels of oil in 8 hours with drill pipe in the hole. Drill pipe was being pulled and the crew was to run tubing to test. Location has been staked for Burris 3-C, SW SE NW 27-2n-7e.

E. H. Moore's Frazier 1, NW SE NW 23-2n-7e, made 245 barrels of oil the first half hour, then jumped production to 649 barrels during the following hour, coming through casing from the Hunton lime. It established a 24-hour potential of 5853 barrels of oil from the lime, accompanied by 4,775,000 cubic feet of gas. It is a north offset to Skelly Oil Company's Ingram 4 which made a potential of 5086 barrels of oil from the same formation.

Amerada Petroleum Corporation completed Wooley 10, SWc NE 22-2n-7e. Top of the Hunton lime was had at 3695 feet and it was drilled to 3836 feet where it gauged 2629 barrels of oil. Gas was gauged at 1,790,000 cubic feet.

Wooley 8, NE NW SW 22-2n-7e, topped the Bromide at 4437 feet, and after drilling to 4438 feet, was plugged back to 3770 feet in the Hunton lime where casing was perforated between 3640 and 3775 feet. The well made 2705 barrels of oil and 3,160,000 cubic feet of gas.

E. H. Moore's Smith 8-A, SE NE NW 31-2n-7e, topped the Hunton lime at 3310 feet, drilled to 3530 feet and established a 24-hour potential of 436 barrels of oil and had 1,000,000 cubic feet of gas.

Shell Petroleum Corporation's Bates 2, NEc NW 26-2n-7e, topped the Bromide sand at 4205 feet and drilled to 4336 feet where it flowed 355 barrels of oil in 24 hours, gross. The well was cutting about 65 percent sediment and water, however, and was plugged back to 3960 feet where it was waiting on cement.

Other good potentials were numerous in the field. Magnolia Petroleum Company's Metropolitan Life Insurance Company 31, SE NW SW 27-2n-7e, made a 24-hour potential of 104 barrels of oil and 3,604,000 cubic feet of gas. Bishop Oil Company's Simpson 1-A, NW SW NW 28-2n-7e, made a 24-hour potential of 3049 barrels of oil and 3,160,000 cubic feet of gas. Production was from the Hunton lime at 3580 feet. E. H. Moore's Ingram 1, NW SE NE 22-2n-7e, made a 24-hour potential of 4214 barrels of oil and 3,280,000 cubic feet of gas.

Stahl Petroleum Corporation's Dennis 1-B, SW NE NW 28-2n-7e, topped the Hunton lime at 3357 feet and drilled to 3632 feet where it made a potential of 2156 barrels of oil and 1,224,000 cubic feet of gas. Phillips Petroleum Company's Norris 16, SW SE SW 25-2n-6e, flowed 3837 barrels of oil and 3,660,000 cubic feet of gas in 24 hours on a potential gauge from the Hunton lime. E. H. Moore's Akers 13, NE NW NE 36-2n-6e, in the Hunton lime, made 120 barrels of oil in one hour following acidization.

Konawa Well Has Good Flow

W. B. Pine's Williams 1, SE NE NE 22-6n-2e, in the Konawa pool of Seminole County, drilled to 2351 feet in the Senora sand and flowed 600 barrels of oil in 24 hours. It looks to be the largest producer ever drilled in the field.

Standolind Oil & Gas Company's Cully 1-B, SE NW SE 12-5n-7e, in the Allen pool, was reacidized with 2000 gallons at 4343 feet in the Dolomite, and after waiting 5 hours, made 30 barrels of oil in 1 hour, an hourly increase of 17 barrels of oil. It was continuing to swab while testing, making about 10 barrels of oil per hour.

Sinclair Prairie Oil Company's Rossanna 1, NWc SW 28-10n-8e, south of the Cromwell pool in Seminole County, made a pinched-in flow of 350 barrels of oil during the last 24 hours opened, and was showing some water. It was shut in while a test of the water was made.

Gulf Oil Corporation's Lee 1, NWc SW 36-15n-2e, north of Wellston in Lincoln County, topped the second Wilcox sand at 5155 feet and cemented 5-inch casing at 5138 feet. It was drilled to 5190 feet and showed some oil between 5184 feet and 5190 feet. The well later flowed 112 barrels of oil in 12 hours with 1,000,000 cubic feet of gas.

Mid-Continent Petroleum Corpora-

tion's Logan 1, NEc SE 31-11n-5e, east of Shawnee in Pottawatomie County, was acidized with 2000 gallons and had oil standing 2000 feet in the hole. It then swabbed 205 barrels of fluid in 7 hours and made 125 barrels of oil net. In 18 hours it swabbed 240 barrels of oil and an estimated 10 barrels of water. A little increase in gas was had and it was still swabbing when last reported.

W. A. Delaney's Starrett 1, SW SE NE 21-5n-5e, in the Wetley pool of Pontotoc County, which swabbed 57 barrels of oil a day from the Viola lime, was acidized, and when opened, swabbed 160 barrels of oil. Magnolia Petroleum Company's Fee 1, NWc SE 24-5n-5e, topped the Hunton lime at 2398 feet and acidized with 3000 gallons. It flowed 337 barrels of oil in 24 hours through tubing May 4, and May 5 flowed 168 barrels of oil in 24 hours. It was being tested.

Langston area test has good show, fails to flow

Oklahoma City.—Logan County stepped to the front in this sector of Oklahoma last week. Amerada Petroleum Corporation and Stanolind Oil & Gas Company's Fouts 2, SE NE NE 14-17n-1w, in the Langston area, found the first Wilcox sand at 5100 feet and ran tubing to 5024 feet. Mud was pumped from the well, but it could not be induced to flow. Because of the hardness of the sand, about 180 barrels of oil was circulated, and during the next 18 hours the well swabbed 210 barrels of oil, then swabbed and bailed dry, with no gas showing. During the following 3 hours, it swabbed 9 barrels of oil through tubing, and after a shut-in of 1 hour flowed 12 barrels of oil. It then was drilled to 5180 feet in the Dolomite and ran 2½-inch tubing to 5078 feet. Acidized with 15,000 gallons and given a 54-barrel oil load, the well made 7½ barrels of oil in 2 hours. It was killed May 5 to pull tubing to shoot.

In the same pool, Ohio Oil Company's Knight 1, SE NE SW 12-17n-1w, cored from 5015 to 5029 feet and recovered Dense lime and Dolomite with a stain of oil. Dolomite was topped at 5025 feet. Another core between 5029 and 5030 feet consisted of 3 feet of Dolomite and Dense lime; 3 feet of gray shale; 10 inches of Gilsonite (sand with black stripes of dead oil); 2 feet 8 inches of Dolomite lime and gray sand; 3 inches of gray sand and some shale streaks with an odor of gas. Top of the Wilcox was found at 5032 feet, and again cored from 5039 to 5049 feet. In the 9 feet of core recovered were found 3 feet of greenish sand; 3 feet of Gilsonite and 3 feet of brown sand having a slight stain of oil and a good odor of gas. It was to core ahead from 5050 feet.

The Texas Company's Denny 5, NE NW SE 33-17n-4w, closely watched test in the Crescent pool of Logan County, topped Wilcox sand at 6288 feet and found it dry. Top of the Dense lime was found at 6600 feet; top of the Dolomite at 6612 feet, and a core was taken from 6635 to 6641 feet. Fifteen inches of core was recovered, consisting of Dolomitic sand with an odor of gas. Another core was taken from 6646 to 6654 feet, and 7 inches of Dolomite was recovered having a slight stain of oil showing at the top. The third core, taken between 6654 and 6659 feet, had a 3-foot recovery of Dolomite and brown lime with no show. After drilling ahead to 6697 feet, a core was taken between that depth and 6700 feet. Another 3 feet of Dolomite and brown lime was recovered with no show. When last reported, operators were trying to unload the hole on gas lift, and had found a rainbow show of oil in mud. Fluid was rising in the hole but it was not possible to ascertain whether it was oil or water.

Salt Water in Second Wilcox

Continental Oil Company's McConnell 6, SWc SE 28-17n-4w, looked disappointing last week when salt water was found in the hole. It had drilled to 6574 feet in the second Wilcox sand when the water was found. Although bailed for several hours, the fluid level could not be lowered below 4250 feet.

Sinclair Prairie Oil Company's Shaffer 3, NE SE NW 28-17n-4w, established a 24-hour potential of 2187 barrels of oil, production coming from 6564 feet. It was accompanied by 5,000,000 cubic feet of gas. When first opened the well flowed 1200 barrels of oil and made 8,000,000 cubic feet of gas in 19 hours with the drill pipe in the hole.

Champlin Refining Company made location for Pfeiffer 4, SW NE NW 4-19n-2w, on the Logan County side of the Lucien pool. On the Noble County side, Stanolind Oil & Gas Company and Amerada Petroleum Corporation made location for Pfeiffer 7, SWc 33-20n-2w.

Stanolind & Amerada's Pfeiffer 6, SW NW SE 33-20n-2w, which had a hole full of oil from the Wilcox sand at 4990 feet, made a 24-hour potential of 6889 barrels of oil, production coming from 5073 feet. Gas was estimated at 6,000,000 cubic feet.

Sun Oil Company's Pfeiffer 3, NWc SW 33-20n-2w, topped the second Wilcox sand at 5021 feet and drilled to 5126 feet where it established a 24-hour potential of 1351 barrels of oil and had 1,100,000 cubic feet of gas.

A. P. I. TRAINS

Railroads arrange for Colorado Springs trip

Houston. — Railroads serving the Southwest are making special efforts to take oil men to the Colorado Springs meeting of the American Petroleum Institute in June.

From the Gulf Coast and South Texas the Southern Pacific is receiving reservations from oil men who plan to leave Friday night, May 28, at 11:45, to arrive in Colorado Springs at 7 a.m., Sunday, May 30.

The Santa Fe is planning a special train from Tulsa by way of Wichita, Kansas. The train leaves at 4 p.m., May 30, and will arrive in Colorado Springs at 8 a.m., May 31, Monday. At Wichita, Kansas, Pullman cars from other areas will be attached to the special at 9:25 p.m., May 30.

Reservations are also being made over the Fort Worth and Denver out of Dallas, Fort Worth, Wichita Falls and North Texas points, which are about 24 hours or less by rail from Colorado Springs.

MIDYEAR MEETING

Technical problems will feature API program

New York.—Pressing problems encountered in oil field operations, and effective ways and means of preventing accidents, occupy prominent places on the preliminary program for the seventh mid-year meeting of the American Petroleum Institute to be held June 1, 2 and 3 in the Broadmoor Hotel at Colorado Springs, Colorado, that will be of interest to production men.

The meeting, which will bring together hundreds of petroleum engineers and technologists for some 50 committee meetings and eight group sessions, largely will be devoted to exchange of technical information looking to the solution of operating problems. The first day, Tuesday, June 1, will be given over to committee meetings. The Institute's Division of Production will have group sessions Wednesday and Thursday, with an informal dinner Wednesday evening. Group sessions will be resumed by the division Thursday morning. On Thursday afternoon the Institute's Department of Acciednt Prevention will have a group session with four speakers.

The preliminary program follows:

Wednesday, June 2, 10:00 A.M.; Division of Production group session on allocation and production problems, in ball room, mezzanine floor, sponsored by the Central Committee on Drilling and Production Practice. Papers on the following subjects are being considered by the program committee for presentation: "Application of Phase-Equilibrium Data to the Estimation of Oil and Gas Reserves," "Proration of Allowable Oil Production," "A Witness's Duties and Rights," and "Results of Tests on Solubility, Critical Flow Rates, Decline Characteristics, Forecast of Gas-Oil Ratio, Etc."

2:00 P.M.—Division of Production group session on Drilling Practice, in ball room, mezzanine floor, sponsored by Central Committee on Drilling and Production Practice. Papers on the following subjects are being considered by the program committee for presentation: "Cause and Cure of Stuck Drill Pipe, Casing, and Tubing," "Standard Practice for Handling Rotary-Drilling Mud," "Importance of Heat Treatment and Design," and "Vibration Problems in Oil Wells."

Thursday, June 3, 10:00 A.M.—Division of Production group session on oil country tubular goods, in ball room, mezzanine floor, sponsored by Central Committee on Drilling and Production Practice. Papers on the following subjects are being considered by the program committee for presentation: "Abuse in Handling Tubular Goods," "Thread-Measuring Instruments for Tubular Goods," and "Report on Special Tests on Casing Threads."

2:00 P. M.—Division of Production group session on production practice, in ball room, mezzanine floor, sponsored by Central Committee on Drilling and Production Practice. Papers on the following subjects are being considered by the program committee for presentation: "Present-Day Practice on Control Devices for Production Service," "Methods of Calculating Plunger Strokes in Sucker Rod Pumps," "How to Pump Crooked Holes," and "Chemi-

cal Clean-Out of Oil Wells in California."

2:00 P. M.—Department of Accident Prevention group session on accident-prevention problems, with the following papers to be presented:

"Development and Use of Accident-Prevention Manuals," G. O. Lockwood, Empire Companies, Bartlesville, Oklahoma; "Transporting Gasoline by Trucks," J. F. Winchester, Standard Oil Company of New Jersey, New York; "Preventing Rotary-Drilling Accidents," J. B. Roaper, Humble Oil & Refining Company, Houston Texas; and "The Value of Accident Statistics," H. N. Blakeslee.

OKLAHOMA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO COUNTY—		
Ohio Oil, Lemon 2, se ne se 2-5n-9w (pb 4500)	¶20	7040
CARTER COUNTY—		
Sun Oil, Davis 4, sw ne sw 23-2s-3w (otd 2923)	27	2980
Rockland Oil, Sarasota 55, cne 23-4s-3w	7	1275
CLEVELAND COUNTY—		
Stanolind-Amerada, State 2, ne se sw 16-10n-2w	24,108	7264
Sinclair Prairie, Bagby 2, ne sw nw 27-10n-2w	¶20¾ & 10,119	7309
COMANCHE COUNTY—		
Morris, Young 1, se ne se 24-3n-10w	*	1008
CREEK COUNTY—		
L. B. Jackson, Brock 1-A, se ne nw 2-17n-8e	31	2720
L. B. Jackson, Nolan "I" 4, se ne ne 2-17n-8e	15	2732
Whitehead 1-A, se se ne 35-18n-8e	5	1628
Johnson Oil Ref., Flinchen 5 nw ne sw 11-19n-9e (pb 1250)	*	2995
Brady and Sons et al, Crothers 4, cnl se se 18-19n-9e	12	2346
Strozier, McCauley 1, ne ne sw 12-16n-11e	¶1	1853
Ireland, Childers 3, sw se nw 9-17n-11e	*	2620
Jackson, Painkiller 1, sw sw nw 30-18n-11e	*	1797
GARVIN COUNTY—		
Hayes Drlg., Howell 1, cse nw 34-1n-1e	*	4013
GRADY COUNTY—		
Western White Lily Oil, Hale 1, se sw nw 33-3n-7w	*	3507
HUGHES COUNTY—		
Green, Spillman 4, ne sw sw 7-6n-8e	15	2852
Manahan, Oliphant "B" 8, sw ne se 11-9n-8e	35	1777
Amerada-Stanolind, Chapman 1, se se ne 36-9n-8e	92	4019
JEFFERSON COUNTY—		
Bridwell, Wohlgemuth 12, nw ne nw 30-6s-5w	75	1521
KIOWA COUNTY—		
Leavell Coal, Perchika 1, cne sw 26-7s-5e	*	415
LINCOLN COUNTY—		
Magnolia, Ross 10, se ne se 2-14n-3e	10	4470
Anderson & Pritchard, Colon 1, cn½ se sw 28-17n-4e (pb 4382)	¶15 & 60	4392
LOGAN COUNTY—		
Phillips, A. Channel 1, ne ne nw 33-17n-4w	¶4 & 1467	6565
Champlin Ref, Pfeiffer 2, cn½ n½ nw 4-19n-2w	6888	5022
MARSHALL COUNTY—		
Kingston O&G, Adams 1-A, ne sw se 31-7s-6e (otd 533)	6	539
MUSKOGEE COUNTY—		
Fultz et al, Swan 1, cel ne se 7-14n-19e	*	860
NOBLE COUNTY—		
Shell et al, Guthrie 1, cnw sw 31-21n-2w (pb 5462)	214	5500
Continental, Conway 1, se se nw 21-23n-2w	¶5¾ & 2697	4322
Shell & Phillips, McCaughtry 9, sw sw ne 21-23n-2w	¶2¼ & 2393	4323
OKFUSKEE COUNTY—		
Sinclair Prairie, Phillips 1, ne se ne 24-10n-8e	97	1886
Manahan, Dolton 18, se ne sw 36-10n-8e	40	1731
Arkansas Royalty, Fisher 11, ne sw se 18-10n-9e	12	1900
Blackwell, Lehmer 3, se sw sw 18-10n-9e	33	1894
Chapman, Dunn 1, se nw nw 18-10n-9e (pb 1884)	70	1888
Deaner, Shultz 1, se se nw 18-10n-9e (otd 1887)	97	1895
Sinclair Prairie, Fisher 8, nw nw sw 19-10n-9e	100	1881
Helmerich & Payne, Robison 1, se se ne 26-10n-10e (otd 3254)	¶5	3320
Mid-Continent, Gafford 1, ne ne nw 35-12n-7e	*	4638
Deep Rock, Palmer 4, se sw se 23-12n-11e	240	3601
OKLAHOMA COUNTY—		
Bryan Pet., Howes Capital 2, ne nw se 27-12n-3w	4152	6514
Phillips, Stikes 5, nw nw ne 34-12n-3w	4194	6607
Ohio Oil, Dahl No. 2 4, sw ne sw 31-14n-3w	2160	6690
Texas & Pacific Coal & Oil, Tegtmeyer 1, ne se se 36-14n-4w (pb 6650)	60	6671
Texas Co., State Land 2, sw se ne 36-14n-4w	1956	6570
OKMULGEE COUNTY—		
Lambert, Friday 1, se se sw 5-15n-15e	*	1651
Stekoll, Hawkins 3, cs½ se 6-11n-12e	¶4	2413
Martin, McHenry 1-A, nw ne sw 16-14n-11e	*	3023
Colton et al, Berryhill 1-B, nw nw ne 17-14n-13e	30	1985
White, Geiger 1-A, ne sw se 22-15n-11e	*	2838
McBrayer et al, Tucker 1, se sw nw 9-15n-14e (otd 1825)	*	2333
W. B. Pine, Sells 8, ne nw nw 10-15n-14e	*	1672
OSAGE COUNTY—		
Mertz, 7, se se se 8-21n-9e	15	314
Gulf Oil, Bearcat 6, nw ne nw 20-22n-10e (otd 1763)	200	1855
I.T.I.O., 3, se sw ne 36-23n-10e (otd 1725) (pb 1738)	172	1744
Lewis Prod., 3, nw ne ne 33-24n-7e	171	2657
Sun Oil, 1, sw sw ne 18-24n-10e (otd 2102)	*	2199
Coralena Oil, 7, ne sw nw 21-25n-6e	*	2820
W. C. Norris, Inc., 7, sw ne se 24-25n-8e (pb 1836)	15	1841
Morrison & Alexander, 7, ce¼ w½ e½ se 35-25n-11e	23	1686
Kewanee O&G, 2, nw sw se 23-26n-6e	lcn.	abd.
Carter et al, 5, ne se sw 34-26n-6e	¶4½ & 1282	2864
PONTOTOC COUNTY—		
Moore, Akers 11, sw nw ne 36-2n-6e	¶4 & 2654	3795
Magnolia, Morrin 4, se ne se 20-2n-7e	¶2½ & 3271	3999
Amerada, Wooley 11, se ne se 21-2n-7e	¶4½ & 3120	3941
Sinclair Prairie, Wooley "B" 22, sw ne sw 22-2n-7e	3457	3685
Phillips, Bates 2, nw ne nw 26-2n-7e (otd 3695)	2¶¾-2311	3812
Skelly, Park College 20, sw nw ne 28-2n-7e	¶3-2393	3612
Skelly, Park College 21, se ne nw 28-2n-7e	¶2¾-3181	3622
Moore, Muse 1, sw ne se 33-2n-7e (pb 4570)	99	5253
Vaughn & Senora, Burk 1, nw sw nw 33-5n-5e (otd 2501) (pb 2552)	167	2577
Larson et al, Robinson 2, ne sw sw 23-5n-8e	3	783
POTTAWATOMIE COUNTY—		
Magnolia, Green 2, ne sw nw 13-7n-4e	*	4302
Hylton Phillips, Bradshaw 1-B, sw sw se 21-7n-4e	15	3982
SEMINOLE COUNTY—		
Carter, Tewee 1, sw nw ne 14-7n-6e (otd 4347)	30	4401
Winona Oil, Myers 3, ne sw ne 31-7n-8e (pb 3190)	*	4216
Wood Oil, Mayhue 1, ne ne ne 14-9n-6e	220	4024
Carter, Parsons 1, ce½ nw sw 14-10n-6e (otd 4198)	2260	4200
Amerada-Stanolind, Billington 1, ne ne se 35-10n-7e	¶¾ 1318	3660
Amerada, Parks 4, sw se sw 35-11n-5e	1368	4645
Suppes et al, Norvell 1, ne se ne 34-11n-8e	*	2002
P. Traugh, Scroggins 1, ne ne se 22-6n-6e	71	2730
STEPHENS COUNTY—		
Angle et al, Posey 1, cnw nw 8-1n-8w	*	5504
Mudge, Woods 48, ne sw nw 26-1s-5w	*	305
George L. Pace, Duncan 5, sw nw ne 28-2s-7w	¶4	1288
Raizen Bros, Price 14, se se sw 10-3s-5w	25	1459

*Failures; †Junked; ¶Million cu. ft. gas.

KANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARTON COUNTY—		
Texas Co., A. T. Morgan 6, nw se sw 25-17s-11w	1373	3303
Hinkle & Phillips, Frederick 1, nw nw nw 12-16s-13w	*	3391
Spencer & Yarnell, Patzner 4, ne ne se 36-17s-11w	2985	3238
Simpson Oil, Asher 1, ne se nw 31-20s-13w	*	3647
BUTLER COUNTY—		
Sid Neff et al, Church 1, sw ne se 8-28s-5e	*	1875
Polhamus, Semisch 5, sw sw ne 5-28s-7e (pb 2751)	50	2757
CHAUTAUQUA COUNTY—		
McKnabb, McGregor 1, sw sw sw 11-32s-10e	*	2081
Denmar Bros, French 2, sw sw ne 1-33s-12e	¶1	1676
COFFEY COUNTY—		
Franklin Drlg., Rosillion 6, cw½ w½ sw 6-23s-15e	lcn	abd.
COWLEY COUNTY—		
Tom Palmer, Lowe 1-A, sw se se 3-32s-5e	*	3589
Stevens County O&G, Olds 1-A, nw nw nw 9-33s-7e (pb 1143)	¶2-5	1144
ELLIS COUNTY—		
Lario O&G, Marshall 2, nw nw se 36-11s-18w	1072	3651
Watchorn O&G, Brown 1, nw se se 3-14s-17w	535	3541
ELLSWORTH COUNTY—		
Continental, Buckler 1, se se se 33-17s-8w	*	3288
Carter et al, Georgia 2, ne se se 27-17s-9w	1282	3155
Gulf, Grizzell 1, sw sw nw 31-17s-10w	1950	3259
KINGMAN COUNTY—		
Skelly, Interurban 3, csw 30-27s-10w (pb 4035)	¶53	4154
McPHERSON COUNTY—		
Hutchinson O&G et al, Berg 1, sw sw se 15-20s-3w	*	3613
RENO COUNTY—		
Wilcox O&G, Neufeldt 4, se sw nw 12-23s-4w	1513	3420
Olson & Shell, Fast 5, ne ne se 25-23s-4w (pb 3359)	35	3386
Shaffer et al, Tucker 5, sw nw sw 20-24s-4w	770	3390
Olson Drlg et al, Herriman 1, nw nw nw 22-24s-8w	*	4193
Magnolia, M. Harris 5, nw se nw 9-26s-4w	821	4101
Shell, M. Whipple 7, ne ne ne 15-26s-9w	3701	4133
RICE COUNTY—		
Bradley Oil, Mitchell 7, se se sw 32-19s-10w	3697	3293
Gulf Oil, S. Wendell 7, ne sw se 32-19s-10w	1354	3299
Republic Natural Gas, S. Wendell 2, sw ne se 32-19s-10w	2245	3295
Stanolind, Mitchell 8, se ne sw 32-19s-10w	872	3313
Stanolind, Panning 2, ne sw nw 33-19s-10w	2604	3291
Tatlock, Poncin 1, nw nw ne 5-20s-10w	1824	3293
Tatlock, Poncin 2, sw nw ne 5-20s-10w	1416	3299
Johnson, Shubert 1, sw sw sw 9-20s-10w	*	3429
Grace Oil, Gossman 2, ne se ne 8-21s-7w	2501	3368
RUSSELL COUNTY—		
Central Pet. Rouback 5, ne ne ne 15-14s-15w	1343	3264
Ohio Oil, Harbaugh 4, sw se nw 25-14s-15w	634	3156
Sinclair Prairie, Hefferman 5, se nw ne 26-15s-13w	352	3025
Coralena Oil, Sellens Estate 1, sw sw se 29-15s-13w	1641	3316
Derby et al, Michaelis 2, nw se nw 31-15s-13w	2476	3257
Derby et al, Michaelis 8, se se nw 31-15s-13w	2378	3253
Phillips, Hoffman 7, se ne se 31-15s-13w	2896	3343
Skelly, Neidens 4, nw nw se 32-15s-13w	2430	3335
SEDGWICK COUNTY—		
Empire, Kimel 1, nw nw nw 4-29s-2w	*	4131
SUMNER COUNTY—		
Stelbar, Barlow "A" 2, cw½ e½ se 33-31s-1w	590	3711
WOODSON COUNTY—		
Harper et al, Miller 1, nw ne se 10-24s-14e	*	1673

*Failures; †Junked; ¶Million cu. ft. gas.

KANSAS FIELDS

Drilling operations show decided increase.

* * *

Wilcox production looms in Central Uplift area.

Wichita.—Drilling operations in Kansas showed a decided increase last week, highlights of the activity there including the possibility of the first Wilcox production on the central Kansas uplift; extension of one pool; location of an important semi-wildcat test and completion of several good producers. Also, a test which many thought might open a new field in McPherson County, flunked out.

M. D. Scruggs' Darwin Bolton 1, SEc NW 31-18s-7w, one mile southeast of production in the Geneseo pool of Rice County, recovered a core saturated with oil from Wilcox sand between 3186 and 3191 feet. Top of the sand was found at 3181 feet and it was drilled to 3186 feet before coring. If this well is a commercial producer, it will be the first Wilcox sand well on the Central Kansas uplift, from which many of the fields in that sector of the state produce. Initial producer from the Wilcox sand in that area was Continental Oil Company's Root 1, which produced 852 barrels of oil from the Wilcox sand before mudding up. It had the sand from 3154 to 3181 feet, from which it filled to within 200 feet of the top of the hole. The pay sand was later cased off and the well drilled ahead to the Siliceous lime, found at 3190 feet. When production declines in the lime, the well may be plugged back to the Wilcox sand and a try for production made.

Mid-Continent Petroleum Corporation's Wood 6, NWc NE 4-20s-10w, west of Chase in Rice County, topped the Siliceous lime at 3315 feet and recovered a core saturated with oil at 3318 feet, the total depth. The well apparently extends the Schwartz pool one location west, and narrows the gap between it and the Silica pool, both in the same county.

Interesting Semi-Wildcat

An interesting semi-wildcat which will be closely watched was started in Butler County last week and is Harry L. Mourer and Saco Oil Company's Connell Fee 1, NEc E½ SW 27-29s-5e, in Rock Creek township. The test is west of the south end of the Fox-Bush pool, and is also a half-mile east and a quarter north of a test completed in January, 1927. Most recent test in the vicinity of the new venture was Gibson 1, SEc 23-29s-5e, drilled by Saco and others last fall.

Darby Petroleum Corporation's Solomon 1, in Section 33-11s-19w, a southeast diagonal offset to the discovery producer in the Solomon pool of Ellis County, topped the Siliceous lime at 3626 feet and cored to 3630½ feet, recovering a core saturated with oil. Casing was run and standard tools rigged up before drilling it. When the plug was drilled, the hole filled 700 feet with oil in 45 minutes. The oil tests 21.3 gravity and has an asphalt base. Discovery well of the area was completed for 600 barrels of oil.

Wolf Creek Oil Company's Bemis 1, SWc NW 4-12s-17w, in the Dreiling extension of the Shutts pool of Ellis County, filled 3000 feet with oil in a short time early last week after drilling out the plug at 3567 feet in the Siliceous lime. Bemis 1 is a north offset to Tom Deal and Wolf Creek's Dreiling 1, recently completed for 1297 barrels of oil. A swabbing test is to be made at the new producer.

Deep Rock Oil Corporation et al's Baumer 2, NE NW NW 27-11s-17w, at the southeast edge of the Bemis pool, began showing for a producer last week. Top of the Siliceous lime was found at 3477 feet, and when drilled to 3484 feet, the well filled 3100 feet with oil in two hours following a test. The Texas Company's Bemis 1-A, NEc 28-11s-17w, made a potential of 2662 barrels of oil from the Siliceous lime.

Atlantic Refining Company and Phillips Petroleum Company's McNaughton 1, NW NE NE 27-24s-13w, one mile south of production in the St. John pool of Stafford County, was completed for 2378 barrels of oil from the Siliceous lime at 4109 feet following acidization. It had previously made only 859 barrels of oil.

Stanolind Oil & Gas Company has made location for Fitzgerald 1, SW SE SE 22-24s-13w, north offset to McNaughton 1. A west offset to the well has been made by Atlantic and Phillips at Pound 1, NE NW NE 27-24s-13w.

Barnsdall Oil Company's Hathaway 1, SW NW NE 33-19s-10w, which extended production two locations east in the Silica pool of Rice County, made 1008 barrels of oil in 24 hours from the Siliceous lime between 3272 and 3284 feet on its potential test. It is thought the well is good for 1500 barrels of oil, and another potential is planned.

Stanolind Oil & Gas Company's Meggars 1, SWc 21-20s-11w, 1¾ miles south of production in the Ellinwood pool of Barton County, topped the Siliceous lime at 3330 feet and drilled to 3341 feet for a show of oil. Casing was to be run and the well standardized.

C. L. Carlock et al's Ely 1, NEc 5-18s-11w, west of production in the Bloomer pool, was shut down for orders after filling 40 feet with oil and 700 feet with water from the Siliceous lime at 3390 feet.

Magnolia Petroleum Company's Roetzel 5, NE NW NE 24-20s-11w, in the Peter pool, made 65 barrels of oil an hour from the Siliceous lime at 3252 feet. Roetzel 4 was completed two weeks ago for 1385 barrels of oil.

Sinclair Prairie Oil Company's Kaufman 2, in Section 18-24s-4w, made 1394 barrels of oil and 25 barrels of water in 24 hours from chat following acidization. It is a west offset to Kaufman 1, recently completed for 3552 barrels of oil, the largest well in the Stone sector of the Burrton pool of Reno County.

Sinclair Prairie Oil Company's Nett 1, NWc SE 32-26s-4w, topped the chat at 3622 feet and was drilling below 3649 feet. The well is running somewhat lower than tests in the Hilger pool to the north and a bit higher than a test drilled two miles to the south in Sedgwick County.

Dickey Oil & Refining Company's Goering 8, NEc SE NEc 17-21s-1w, at the north end of the Graber pool of McPherson County, was completed for 988 barrels of oil from the Hunton lime at 339 feet following acidization with 3000 gallons.

Running Lower

Sinclair Prairie Oil Company's Herrick 2, NE NW SE 15-35s-2e, near Gueda Springs in Sumner County, topped the Bartlesville sand at 3372 feet and found a trace of oil at 3377 feet. Casing was being underreamed to bottom before drilling ahead.

Price et al's Kraft 1, SW NW NE 10-17s-11w, northwest of the Breford pool of Barton County, drilled to 3237 feet in the Kansas City lime and drilled plugs. The well filled 1500 feet with oil in 15 hours and was to be acidized.

S. A. Murphy and Western Kansas Oil & Refining Company's Thome 1, SWc NW 19-28s-1w, southwest of Wichita in Sedgwick County, had a hole full of water in the Wilcox sand at 3733 feet and was drilling below 3780 feet. Top of the sand was encountered at 2719 feet.

The Texas Company's Harper 1, NE SW SE 9-30s-3w, 4 miles north of Conway Springs in Sumner County, found a small showing of oil in chat at 3871 feet. It had a hole full of water at 3953 feet and was drilling.

Skelly Oil Company's Neidens 3, NE SW NE 32-15s-13w, in the Trapp pool of Russell County, drilled to 3342 feet in the Siliceous lime and pumped 1004 barrels of oil in 12 hours on a potential test.

Mozell Oil Company's O'Neil 1, SWc NE 25-29s-12e, north of Longton in Elk County, recovered a saturated core from 858 to 864 feet and was shut down for acid. The well is north of the Longton gas field.

Chase Plant Not Sold

Chase, Kan.—Harry H. Becker, receiver for The Cusco Oil & Refining Company of Chase, states that the court has not yet set a sale date. It was stated in The Oil Weekly of April 19 that The Tusler Petroleum Corporation has purchased the plant.

NORTH AND WEST TEXAS

Second high-gravity Delaware well in Mason area.

* * *

Reeves County wildcat shows oil in Delaware lime.

* * *

North Permian Basin drilling expected to increase.

Midland, Texas.—Completion of a second high-gravity oil producer from the Delaware lime section in the Mason area, Loving County, and development of a show of oil from this formation by a wildcat near Toyah, Reeves County, have stimulated interest in the Delaware Basin of the West Texas district. A number of wildcat projects are now underway or projected.

Grisham-Hunter Corporation et al's C. Montgomery 1-A, NWc S½ NW Section 1, Wm. B. King Survey, 1 mile northeast of Toyah, brightens the prospects for Reeves County registering its first oil area to make amends for its several freak producers in former years. Montgomery 1-A logged show of gas at 3948 feet and 3952-59 feet, followed by live oil at 3969-70 feet. Gas pocket at 3971 feet lodged tools at bottom of 7-inch pipe, cemented at 3865 feet. Fishing was in progress late last week, with a small amount of free oil appearing with drilling water above the tools. Top of Delaware lime was logged at 3859 feet, with an elevation of 2891 feet, and the hole is bottomed in the sand series, which yields high-gravity oil in two Loving County areas and an isolated well in Ward County. Montgomery 1-A is about 100 feet lower on structure than A. R. Eppenauer and J. C. Cunningham et al's Tillar 1, located 1½ miles to the west, and is about the same interval higher on top of the Delaware than May & Milton's Ellis 1, 2¾ miles to the northeast. Tillar 1 showed lots of gas in the Delaware, but water trouble developed.

Reeves County Campaign

Reeves County is in line for another wildcat drilling campaign. Barnett Petroleum Corporation, Dallas, J. C. Hill and Continental Oil Company have started operations on Ely 1, C NW Section 38, Block 71, PSL Survey, 9 miles southwest of Toyah. Sid Richardson et al have assumed an obligation to drill a Delaware test in H. & G. N. Section 53, Block 4, about 6 miles west of Pecos, in return for lease on a block of 15,500 acres. Richardson is one of the largest independent producers in West Texas, having developed same largely from farmed-out leases originally held by large companies in Ward and Winkler counties. General Crude Oil Company will start operations shortly on a Delaware test in T. & P. Section 15, Block 56, Tsp. 2. The latter has been assigned lease on 1320 acres out of a block of 5500 acres and $10,000 bottom-hole money pledges by Bruce McKague, J. N. Gregory et al, who recently purchased the acreage.

Mason Oil Company, subsidiary of Michigan Oil & Gas Company, developed an initial flow of 450 barrels of high gravity oil from its Minnie Kyle 3, west offset to the discovery well of the Mason pool, Loving County, after 215-quart nitro shot in Delaware at 3851-3901 feet. This flow exceeds the output of the original well in the same horizon. Stanolind Oil & Gas Company's Kyle 1, south offset to the discovery, is standardizing at 3741 feet. Mason Pipe Line Company operates a 10-mile crude line from the discovery lease to Reeves County, where deliveries are made to Pasotex Pipe Line Company, with facilities to make tank car shipments also present at the end of the stub line. D. J. Finley, A. W. Cherry et al's Johnson 1, located 1¾ miles west of the discovery, is drilling near the 1200-foot level, and Barnett Petroleum Corporation is starting a test 3 miles northwest of production. Woodley Petroleum Company has staked a location immediately east of production.

In western Ward County, L. F. White et al's Monroe-Rector 1, 1 mile east of a Delaware producer, was due to resume drilling at 4475 feet after cementing 7-inch pipe.

Large Estes Field Wells

Tide Water Associated Oil Company is among the largest producers in the Estes field, Ward County, through development of unusually large wells on its W. D. Johnson 640-acre lease, which was given a potential rating of 69,465 barrels daily from 19 wells, with an allowable of 1770 barrels daily on the May 1 proration schedule. This lease was acquired through the purchase of Simms Petroleum Company, and the 2 wells on the south portion of the tract were appraised at $75,000 when the deal was made. Johnson 17 recently was completed for a potential rating of 5486 barrels daily on ¾-inch choke after nitro shot at 2554-2674 feet, and earned an allowable of 144 barrels daily.

Sinclair Prairie Oil Company's University 1, Lease 24, semi-wildcat recently completed in northern Crane County and between the Waddell and Judkins fields, developed water after responding to acid treatment at 3615 feet with a flow of 246 barrels oil in 16 hours, and has plugged back to 3613 feet. Snowden & McSweeney Company is starting an offset.

Deepen Pecos County Test

Resumption of operations on Tex-Mex Petroleum Corporation's McKee 1, H. & G. N. Section 24, Block 9, northern Pecos County, to try for production in the Ordovician will follow shortly as result of Magnolia Petroleum Company having contracted to deepen the test to 6000 feet in return for half interest in the well and 160-acre site, and full interest in 6250 acres. Operations have been held up for some weeks by the loss of a bit at 2724 feet. Magnolia Petroleum Company will move in its crew to try and remove the junk and fulfill the 6000-foot contract. This wildcat is considered a good Ordovician prospect, since it is on a general geological strike to the south of the deep production in the Sand Hills field, Crane County. W. T. Daniel et al have acquired lease on a 4500-acre block in return for the drilling of a 4000-foot test in T. & P. Section 108, Block 3, 9 miles southwest of Fort Stockton.

Permian Basin to Be Busy

Activity in the north portion of the Permian basin failed to yield important developments the past week. More prospecting is being contracted for, and drilling will reach important proportions during the fore part of the summer. A. R. McElreath and F. W. Suggett have accepted titles to a drilling block in Hockley County, and will announce location shortly on a site about 2½ miles east of the recent discovery by The Texas Company.

In Yoakum County, Magnolia Petroleum Company's Taylor 1 was drilling at 4005 feet, and will halt operations shortly to land pipe and change to cable tools. Top of Yates sand was logged at 3040 feet, or 567 feet above sea level. Coffield et al have taken a drilling block in the southwest portion of the county, and plan to drill near the common corners of Sections 793, 794, 835 and 836, Block D. J. B. Gibson Survey. The Texas Company is reported to have leased Section 794, paying $50 per acre, with 50 percent cash. Moore Bros. Corporation's previously announced Yoakum County test has been assigned to the NEc Section 706, Block D, and on the Geo. Cleveland land farmed out by Ohio Oil Company along with a total of 5000 acres for a test. In southern Terry County, Hugh Corrigan et al's Lewright 1, which was originally carried to 4975 feet last March by other independents, has deepened to 5110 feet. It is carrying 4400 feet of sulphur water encountered at 4938 feet, with an elevation of 3185 feet. R. L. Foree et al's contracted wildcat on the C. O. Edwards ranch, northwest of Tahoka, Lynn County, has been assigned to the SEc H. E. & W. T. Section 104, Block 9.

TEXAS HEARING

Regular monthly meet scheduled for May 17

Austin.—The statewide proration hearing will be held in Austin on May 17, according to an announcement made by the Texas Railroad Commission last week.

The commission stated that it will consider revision of Form SW-2, the forecast tender form, providing a column in this form "to show the number of barrels in previous tenders authorized against each respective lease for the current month covered by the SW-2 applied for."

The Form SW-6 may also be revised and "products on hand" will be shown separately from "crude" on hand. "Oil in Lines" may also be required separately on this form to distinguish it from oil in steel storage, as the former is not tenderable, the commission assuming that lines are full at all times.

West Texas price probe scheduled for May 12.

Austin.—The final meeting of the joint legislative committee investigating crude oil prices in West Texas has been scheduled for Wednesday, May 12. At that time the committee will receive written briefs and hear oral arguments on evidence presented.

South Vernon strike attracting drilling.

Wichita Falls.—Canyon lime horizon, recently proved for flowing production in the South Vernon district, Wilbarger County, is attracting a large drilling and old-well deepening program. Three wells on offset locations have been completed as natural producers near the 3076-foot level since Phillips Petroleum Company's Waggoner Estate 51, NEc Section 44, Block 4, uncovered the new deep pay with an initial potential rating of 2214 barrels of 39 gravity oil last February 19. W. W. McDonald and R. B. Campbell et al's Waggoner Estate 3-A, NEc Section 26, Block 4, promises to extend the new horizon 2¾ miles to the southeast through having logged favorable oil and gas showings in Canyon at 3040-57 feet and 3079-84 feet. The latter is drilling ahead to try for a lower pay near the 3440-foot level, which was logged by Empire Oil & Refining Company's Waggoner Estate 2-A, near NWc Section 32, Block 4, but passed up to continue to 4090 feet. McDonald has announced that if the 3440-foot zone is not productive, the test will cement pipe and gun-perforate opposite the oil zones passed up. It has an elevation of 1132 feet.

The production trend in the Canyon zone is expected to be somewhat narrow in the South Vernon district, and will extend in a northwest to southeast direction. Previously drilled failures indicate that the Canyon structure does not conform to the multiple shallower oil and gas horizons along the same general trend.

Drilling was under way at 5858 feet on Olson Drilling Company et al's D. R. Utiger 1, Ordovician lime project for the Preston Anticline, Grayson County, after recovering from fishing job at 5751 feet. It is contracted to drill to 6000 feet.

Two new failures have been recorded for the Bolivar area, Denton County. Ruwaldt & Martin's Gambill 1 missed the oil and gas horizons, and suspended operations at 2125 feet. Harry Culver et al's C. Waide 1, J. Chism Survey, located northeast of the discovery oil producer for the county, encountered hard granite at 1907½ feet, and abandoned at 1909 feet.

TEXAS PANHANDLE

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
J. M. Huber Pet. Co., S. B. Burnett 7-R	790	3110
Sinclair Prairie, E. Cooper 6	583	3064
GRAY COUNTY—		
Cosmos Oil Co., Tom Catlin 4	818	3230
Dolomite Prod. Co., Sailor 3	650	3240
Empire O&R Co., J. Staples 1	96	3247
Gardner Bros., E. G. Barrett 5	735	3310
Magnolia, C. S. Barrett 7	64	3280
E. Haggard 6	515	3290
Stanolind & Miller, A. Waggoner 7	271	3273
HUTCHINSON COUNTY—		
Gulf Oil Corp.-Panhandle Ref. Co., Dial 69	400	3075
Phillips Pet. Co., Perkins-George 10	375	2975
Tripplehorn Bros. et al., R. C. Ware 6	597	3150
MOORE COUNTY—		
Shamrock O&G Co., Robertson-Gulf 2-D	82	3449

WEST TEXAS

Company, Well and Location	Init. Prod. Bbls.	Depth
CRANE COUNTY (Sand Hills Field)—		
Gulf-T. B. Cranfill, J. B. Tubb 4	678	4400
CRANE COUNTY (McCamey Field)—		
L. H. Choate, Hogan & Wilbanks, Cordova Union 1	18	2348
H. & P. Oil Co., E. S. Hughes 2	*	2139
CRANE COUNTY (Waddell Field)—		
Magnolia, W. P. Edwards 9	23,282	3550
ECTOR COUNTY (Foster Field)—		
Broderick & Calvert, Inc., H. C. Foster 4	796	4180
ECTOR COUNTY (Goldsmith Field)—		
American-Maracaibo Co., C. Scharbauer 2-A	433	4220
Landreth Oil Corp., C. Scharbauer 2-C	608	4226
C. Scharbauer 3-C	1376	4230
C. Scharbauer 2-F	2132	4214
C. Scharbauer 1-I	844	4215
Ben F Nysenwander, Jr. et al, C. Scharbauer, Dunning 1	208	4230
Shasta Oil Co. et al, C. Scharbauer 1-C	1168	4228
ECTOR COUNTY (Judkins Field)—		
Humble, B. W. McKenzie 1	202	3650
ECTOR COUNTY (North Cowden Field)—		
Stanolind, J. M. Cowden 46	245	4304
HOWARD COUNTY—		
Ajax Drl. Corp., TP Land Trust 1	†	1740
Sinclair Prairie, J. P. Davis 7-B	794	2825
LOVING COUNTY (Wheat Field)—		
Sinclair Prairie, J. J. Wheat 4-C	76	4342
LOVING COUNTY (Mason Field)—		
Michigan O&G Co., (was Mason Oil Co.), M. Kyle 3	450	3902
PECOS COUNTY (Torborg Field)—		
Cardinal Oil Co., M. A. Smith-Cornell 12-A	11	473
PECOS COUNTY (Wildcat)—		
Bahan & J. B. Rhodes, H. E. Bonebrake 1-B	*	2502
TAYLOR COUNTY (Wildcat)—		
L. Dunn, H. McAlister et al, M. Bowles 1	5	1751
UPTON COUNTY		
Cardinal Oil Co., E. W. Shirk 3	689	2250
Continental, A. A. Reese 7	1045	2650
A. A. Reese 8	982	2461
Geo. E. Farley et al, Estep-Shell 2	173	2280
Humble, A. A. Reese 6	294	2640
TP Coal & Oil Co.-The Texas Co., J. F. Lane 9-E	601	2275
WARD COUNTY—		
Gulf, E. W. Estes 16	1303	2665
Hutchings 74	105	2767
Humble, University 14-F	824	2753
R. W. Lindsey Drl. Co. & Bolin, Hardage-Wilson 3-B	204	2387
Provine & O'Quinn, Inc., B. Aguliar 1	38	2210
York 3	220	2536
Sinclair Prairie, H. Archenhold 8	378	3060
Skelly, W. H. Martin 4	442	2950
Tide Water Associated, W. D. Johnson 17	5486	2674
W. D. Johnson 20	4190	2705
WINKLER COUNTY (Wildcat)—		
K. D. Oil Co., Pink Mitchell 1	*	3666
WINKLER COUNTY (Kermit-Sayre Field)—		
Harry Adams, Hitchcock & Bradley, Walton 2-B	2786	3091
Bert Fields et al, O. Clapp-Pure 7	1709	3124
Gulf, L. Daugherty 32	1039	3130
L. Daugherty 33	593	3138
L. Daugherty 34	853	3125
Oscar Clapp 8	456	3113
Humble, N. R. Colby 10-C	1084	3055
W. A. McCutcheon 6	982	3015
Illinois Oil Co., Central Bank-Conoco 14-B	1164	3118
Magnolia, J. B. Walton 70	579	2916
J. B. Walton 71	276	2849
J. B. Walton 74	198	2916
J. B. Walton 76	1018	2926
TP Coal & Oil Co., Daugherty 18	292	2955
WINKLER COUNTY (Keystone Field)—		

NORTH TEXAS

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
L. T. Burns et al, W. D. Pace 6, blk 163	3	1273
Cargo Oil Corp., O. Slopansky 1, blk 64	*	2300
J. D. Carpenter et al, Fee 1, blk 39	*	1068
Golding & Cochran, B. R. Jeske 10, sec 6	35	1190
J. M. Kunkle 1, blk 8	38	1158
J. H. Hardegree et al, J. J. Perkins 1, sec 57	25	1457
Humble, Mrs. E. A. Herndon 1, sec 1	*	1760
King Oil Co., J. J. Perkins 9, blk 13	25	1000
Petroleum Producers Co., K. & K.-Conoco 1, blk 64	*	1797
J. G. Steele et al, N. I. Andrews 1	90	1000
Underwood Drlg. Co. et al, R. O. Andrews 1, sec 1805	*	953
BAYLOR COUNTY—		
Consolidated Oil Co., Portwood 20-R, sec 1579	*	1440
CLAY COUNTY—		
Bridwell Oil Co., Saner-Lomax 9	*	300
R. N. Hamilton et al, Fred Wines 1, blk 4	*	505
The Texas Co., J. B. L. Hansard 4, blk 1	68	1104
COOKE COUNTY—		
Dove Oil Co., J. A. Carr 8	441	1964
Kingery Bros. et al, H. Hensheit 1	10	763
F. W. Merrick, Inc., Knabe 36, blk 6	8	835
Mudge Oil Co., Johnson 19	30	1140
A. D. Robinson et al, J. H. Otto 5-A, blk 5	8	799
Schermerhorn Oil Corp., M. Kessler 5, blk 5	24	904
Seitz-Comegys & Seitz, Trew 20-A	45	1284
United Prod. Co., Trew 9	*	1642
DENTON COUNTY—		
Harry Culver et al, C. Waide 1	*	1909
GRAYSON COUNTY—		
Pete A. Shaner et al, W. M. Blair 1	*	3558
JACK COUNTY—		
Brazos River Gas Co., J. A. Jones 4	¶6	2989
Deep Oil Dev. Co., J. M. Birdwell 4	193	3013
Hamilton Pet. Co., Mrs. M. A. Sampley 1	¶2½	3251
Hammon & Herbert, F. H. Rhodes 3	*	2426
Indiana Oil Co., Bryson-York Townsite 1	291	3027
Thos. D. Humphrey, M. B. Cook 1-A	25	2947
G. T. Smith 4	60	2976
Kimberlin & Howse, Bryson Townsite 1	40	3080
Panhandle Ref. Co., M. B. Cook 5	100	2968

Continued on next page

Company, Well and Location	Init. Prod. Bbls.	Depth
MONTAGUE COUNTY—		
Lesh & McCall, Cunningham 14-A..	65	947
Cunningham 15-A	82	939
N. H. Martin & Son (was Arco Oil Co.), Mrs. M. Salmon 3	17	1019
Perkins-Cullum Oil Co., Mrs. M. Salmon 1	55	920
Mrs. M. Salmon 2	54	927
Mrs. M. Salmon 3	12	922
Pure Oil Co., W. W. Jones 5-A, blk 37	28	885
WICHITA COUNTY—		
Bridwell Oil Co., W. B. Honaker 7..	*	1070
C. W. Clark et al, Allen-Kemp 9-B, blk 44	8	1235
G. W. Cooper et al, Waggoner Est. 19-C	208	1620
H. G. Mitchell et al, Fassett-Tuttle 1, sec 2	10	889
Pois & Schultz, Foster-Allen 4-C....	150	1298
Geo. Proctor et al, Foster-Allen 8-A, sec 1	*	1130
Mrs. A. M. Rowe et al, Waggoner Bros. 10, blk 13	40	1322
The Texas Co., Waggoner Est. 434, sec 13	55	1972
Waggoner Ref. Co., Waggoner Est. 15-AA, sec 13	50	1947
YOUNG COUNTY—		
S. S. Alexander et al, G. B. Hamilton 8, sec 3401	*	940
J. W. Lane et al, Lem Groves 2, sec 1491	10	961
C. A. Lupton & J. McLester, J. A. Brown 1	476	3730
Pet. Producers Co., C. E. Luton 8..	10	668
Pitzer & West-Tide Water Associated, J. C. Nolen 1, sec 606	688	3900
Rathke Oil Co., Texland-F. B. Wadley 1	20	4242
E. C. Reed et al, Mrs. E. Weems 1, sec 626	*	585
A. T. Strong et al, M. K. Graham 1, sec 3410	150	2589
Robt. E. Sweeney et al, L. D. Clark 1, sec 209	*	670

WEST CENTRAL TEXAS Completions

BROWN COUNTY—		
Charter O&G Co., Lobstein 1.....	*	1358
CALLAHAN COUNTY—		
A. R. Foster et al, Snyder 1.....	†	1185
H. V. House et al, Smart 1.....	*	815
Ungren & Frazier et al, Alexander 1-A	*	1290
Jackson 1, sec 16.....	*	1260
COLEMAN COUNTY—		
Midfield Oil Co., Ward 1.....	*	1500
COMANCHE COUNTY—		
H. L. Baughman et al, Hardin 1..	*	1325
EASTLAND COUNTY—		
H. H. Schwarz et al, Hearn 1.....	*	1609
States Oil Corp., Schmick 1.....	*	1618
HAMILTON COUNTY—		
T. K. O'Neal-Ireland O&G Co., G.L. Doyle 1	†	3745
McCULLOCH COUNTY—		
H. Curtis et al, Rice 1.....	*	935
SHACKELFORD COUNTY—		
Albany Oil Co. & Pardue, Davis 10	*	1729
Baker & Pardue, Davis 4-B.....	*	1675
Butler & Horn, Morris-Buie 13.....	95	1604
Aaron Cohen et al, Baker 5.....	30	1670
Danciger Oil & Refineries, Inc., McCown 1	*	2025
J. L. Flowers, Tr., Rogers 2.....	7	329
Rogers 3	*	420
Groover-Rose & Jones-Stasney, Davis 1	*	1637
A. Housley et al, Reynolds 6.....	10	916
C. Morton et al, W. H. Green 3....	*	555
F. C. Morton et al, Davis 2-A.....	*	1496
Owens-James & Jones, Morris-Buie 10	100	1613
Morris-Buie 11	40	1622
S. B. Roberts et al, Davis 1.....	*	1740
Roeser-Pendleton, Inc., Davis 1.....	¶5.6	1915
Dawson 23, sec 202.....	187	1627
Dawson 24, sec 202.....	91	1617
Dawson 25, sec 202.....	161	1624
Newell 1	*	1973
Tannehill Oil Co., Newell 39.....	10	934
Newell 40	30	938
Warren & Matthews, Matthews 3...	104	905
West Texas Oil & Prod. Co. et al, Davis Bros. 1	*	1728
Dawson-Conway 3	*	1719
Thos. Wittmer et al, H. A. Lones 1	*	772
STEPHENS COUNTY—		
C. B. Christie et al, Maury 1.....	*	3608
Clark-Cowden Drl. Corp.-Russ Pet. Co.-W. T. Garrett, Echols 1.....¶13.6		3880
Mudge Oil Co., Hill 1.....	26	3228
Snowden & McSweeney Co., Jones 12	40	3162
PALO PINTO COUNTY—		
W. K. Gordon et al, Canty 2.....	*	4005

*Failures; †Junked; ¶Million cu. ft. gas.

EAST TEXAS

Opelika discovery well to junk; start second hole.

* * *

Houston County wildcat has heavy gas blow out.

* * *

Cayuga production extended into Henderson County.

Tyler.—No progress was made the past week in restoring the flow of high gravity oil and gas from the Tide Water Associated Oil Company et al's McElreath-Suggett 1, lower Trinity formation discovery on the Opelika structure, Henderson County, although acid, fresh oil and water were used at intervals.

Owners have staked a second location to be drilled on the discovery tract 900 feet southeast of their original prospect, and have started skidding the heavy rotary rig. An order for plugging the first test was expected to be issued late last week. This test penetrated 10 feet of oil saturated lime in drilling to 7195 feet, or 6803 feet sub-sea, after logging first anhydrite stringer at 6930 feet, and has not reached the massive anhydrite zone. Drill pipe became stuck 35 feet off bottom, and had to be cemented in place with rock bit openings providing the only channels for the well to flow. The cement job did not obstruct the small outlets, as the well kicked off making 37 gravity oil with a small amount of gas when given first test through cemented drill pipe on April 27. The rock bit holes became clogged after recovering less than 100 barrels of oil and considerable drilling fluid.

Three thousand gallons of acid was pumped to the bottom and passed through the rock bit openings on May 3, and temporarily restored casing pressure to 1250 pounds. Later fresh oil and water were injected under pressure, but with negative results. Seaboard Oil Corporation and Humble Oil & Refining Company each have one third interest in the well and supporting block of about 12,000 acres. Lease trading within and adjacent to this block reached a maximum price of $500 per acre, but has since subsided to await more information on the well.

Similar to Rodessa Oil

Analysis of the oil from a sample, testing 36.5 gravity, yielded 25 percent gasoline; 15 percent gas oil; 11 percent kerosene; and the remainder was residuum, which is rated as a high grade charging stock somewhat similar to Rodessa crude.

Drilling depth record for the Woodbine basin area was established the past week when Tide Water Associated Oil Company and Seaboard Oil Company's Monnig Bros. 7, Long Lake field, Trinity test, proceeded to 9190 feet. Top of lower Glen Rose was logged at 8748 feet, with an elevation of 233 feet, and formation tester used at intervals in the latter zone forecasts probable completion of a gasser when the hole is plugged back and pipe set for gun-perforation. In the Blackfoot area, Anderson County, Tom Hunter, American Liberty Oil Company et al's Gage 1 has penetrated the lower Glen Rose in coring to 9030 feet, but no showings have been recorded. Roeser & Pendleton, Inc.'s Bowyer 3, third Trinity test for the Cayuga field, was drilling at 5650 feet.

Stanolind Oil & Gas Company et al's Hawks 1, located 1 mile west of Campbell, Hunt County, and on the Mexia-Talco fault trend, halted temporarily in lower Woodbine at 3414 feet to make drill-stem test after an odor of oil in rotary returns. Oil was used to free stuck drill pipe at 3043 feet. This wildcat cut the fault at 1275 feet, and logged top of Woodbine at 2885 feet, with an elevation of 566 feet. Penn Oil Corporation and Fox Wood's Parrish 1, southeastern Hunt County Trinity prospect, was drilling below 5700 feet, with an elevation of 595 feet.

Trinity tests underway at Van, Wortham and Mexia did not offer any developments the past week.

Talco extension makes small pumping well

Talco, Texas.—Magnolia Petroleum Company's J. A. Chapman 1, NWc of 341¾-acre lease, Geo. Dyer Survey, located 1200 feet east of nearest production in the Talco field, has been completed pumping 48 barrels of 19.6 gravity oil initial. The hole is bottomed at 4367 feet, or 4017 feet below sea level, and was deepened at intervals after failing to make a commercial producer when originally tested at 4305 feet. Rig has been skidded one location south.

Humble Oil & Refining Company's T. L. Leake 1, NWc of Wm. Birdwell Survey, Franklin County, and 3400 feet southwest of nearest production, uncovered attractive production between the main portion of the field and the west extension area by pumping 359

barrels of oil in 19 hours from Paluxy at 4158-4314 feet. It has an elevation of 354 feet. The Texas Company has started operations on H. C. Barker 1, SEc of 79.6-acre lease, and west of nearest production along the fault trend.

Talco entered the current week with 301 flowing and pumping wells. Production for the week ending May 3 averaged 24,781 barrels daily, and during this period Humble Pipe Line Company delivered 15,828 barrels daily through its line to Louisiana.

Robt. D. Goodrich et al's Logan 1, located 1-1/3 miles west of nearest production in the Sulphur Bluff field, Hopkins County, failed to make a producer in Paluxy series, topped at 4523 feet, with an elevation of 414 feet, and abandoned in water sand at 4553-4583 feet. This outpost cut the fault at 3155 feet, and was considered properly located to make a producer. No failures have been drilled in the field proper, and all wells are flowing their allowable without producing water.

Houston County wildcat has oil spray with gas

Palestine, Texas.—The Procella geophysical prospect in northeastern Houston County drilled by Placid Oil Company et al, on the J. E. Elliott 200-acre site, Juan M. Procella Survey, 6 miles northeast of Grapeland, blew out May 5 while removing tubing and made high-pressure gas production at estimated rate of 15,000,000 feet daily, accompanied by an oil spray and salt water. Performance of this wildcat is considered ample proof that it marks the opening of a new gas, and possibly oil area from the Woodbine sand zone in the south portion of the East Texas basin. Nearest production is two prolific gas and distillate wells northwest of Grapeland, but the two areas are on separate geological features.

Production from the Procella strike was placed under control after the wreckage was removed from the derrick floor, as the surface connections remained intact. Approximately 1500 feet of tubing was blown from the hole. The remainder of the string had been pulled when the well failed to produce through a formation tester after gun-perforating 5½-inch pipe with 10 shots at 5868-70 feet, or opposite the top of the Woodbine sand. This wildcat, which is located on acreage donated by Shell Petroleum Corporation from its large block, commanded attention last April 1 when it made gas, 5 joints of 40 gravity oil and 400 feet of salt water in formation tester from sand at 5870-79 feet. Owners elected to drill to 6634 feet, with an elevation of 371 feet, and cemented pipe at 5955 feet after plugging off the lower Woodbine, which carried salt water. Pecan chalk was logged at 4590-4955 feet, and Austin chalk at 5587-5869 feet.

Cayuga Extended

The north portion of the Cayuga field, which projects into Henderson County, was extended 4000 feet east the past week when O. M. Rector et al's Queen Sutton 1, SWc 68-acre lease, G. J. Mitcham-Pearson Survey, flowed 170 barrels of oil in 24 hours through ⅛-inch choke from Woodbine at 4104 feet, or 3761 feet sub-sea. About 6 feet of oil sand was cored at the bottom, and no recovery was made from 13 feet of formation above. The gas-oil ratio was 550 feet per barrel. Rig has been skidded one location north. Nearest production is Fred M. Allison Production Company-Cortex Petroleum Company's B. H. Wathen 1, which recently made 131 barrels potential on same size choke from 9 feet of sand, with the hole bottomed at 4100 feet, or 3760 feet below sea level. The latter well earned an allowable of 61 barrels daily.

Tidal Accumulating Crude

Tyler, Texas.—Tidal Pipe Line Company, crude purchasing and transportation unit for the Tide Water Associated Oil Company, has accumulated about 1,000,000 barrels of crude stocks in the East Texas field, and is attempting to lease additional large tanks to continue this storage program. The company is connected to about 1090 wells in the field, with an allowable quota of 22,276 barrels daily, including 13,297 barrels of controlled production. Reports credit the company with experiencing difficulty in obtaining tankers to move its crude from the Texas Coast to affiliated refineries on the Atlantic Seaboard.

Postpone Two Hearings

Austin.—Hearings scheduled by the Texas Railroad Commission for May 7 on Agua Dulce field, Nueces County, and West Beaumont field, Jefferson County, have been postponed indefinitely.

When the hearing was called applicants announced that they had been unable to complete evidence to be presented.

EAST TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
Atlantic Ref. Co., Ida Kinney 41 (336-ac)	3500	3697
W. H. Gant-Garvin & Wegener J. N. Hale 15 (158.64-ac)	500	3568
Humble, R. E. L. Silvey 56-A (458.97-ac)	5700	3693
J. W. Turner 36 (286.52-ac)	3600	3774
Luling O&G Co., J. P. Maxwell 1 (5-ac)	120	3679
Magnolia, T.O. Mason 18 (144.8-ac)	1000	3675
M. H. McMurrey, Tr., G. A. Turner 25 (199-ac)	3600	3805
Stanolind, W. O. Alford 16 (99.35-ac)	5500	3755
R. G. Mason 14 (108.24-ac)	1200	3618
Sun Oil Co., Schuyler-Schuyler 9-A (50-ac)	3500	3625
G. H. Vaughn et al, L. P. Thrash 10 (40-ac)	7000	3784
Weaver-Crim Corp., T. Stone 10 (49.26-ac)	4500	3800
Wynne Drl. Co. (was Bergin Oil Co.-F. V. Hughes), O. W. Knight 1 (2.81-ac)	7200	3630
KILGORE AREA—		
C. A. Everts Drl. Co., H. P. Crews 10 (64-ac)	2500	3817
M. T. Flannagan et al, W. B. Walker-Tidal 9 (91.3-ac)	600	3583
Hamilton & V. H. Ellis, W. D. Utzman 3 (67-ac)	480	3510
W. D. Utzman 6 (67-ac)	†	2450
W. D. Utzman 7 (67-ac)	480	3548
W. D. Utzman 8 (67-ac)	480	3538
W. D. Utzman 9 (67-ac)	480	3522
Thos. D. Humphrey, Angus Spear 2 2-B (22-ac)	5600	3563
Magnolia, H. P. Hale 10 (50-ac)	80	3605
John Radford 37 (252-ac)	7000	3676
Sam F. Jordan et a, S. V. Gary 1 (40-ac)	*	3640
Frank King & B. G. Byars, E. B. Florey 4 (20-ac)	800	3648
Shell, W. W. Elder 39 (196.05-ac)	8500	3564
B. F. Laird 30-A (211.31-ac)	7200	3602
Sinclair Prairie, W. B. Walker 8 (72.4-ac)	500	3692
Shasta Oil Co., H. Alexander 7 (25-ac)	1200	3633
Smith-Bohlssen Oil Co., M. R. Terrell 7 (67½-ac)	720	3677
Sun Oil Co., A. G. Morton 23 (336.24-ac)	2800	3500
Sutton & Hawkins, D. Hilburn 8 (35-ac)	4200	3674
The Texas Co., W. Davis 13 (64-ac)	8700	3568
Tide Water Associated, C. O. Christian 16 (117-ac)	12000	3725
M. B. Hughey 32 (200-ac)	7000	3535
J. S. King 19 (81-18-ac)	7000	3595
Wheelock-Collins, W. M. Clayton 11 (72.34-ac)	5400	3564
LONGVIEW AREA—		
A. L. Baggett et al, H. B. Owens 3 (22½-ac)	900	3740
J. T. Buckley-Cliff Camp Drl. Co., G. E. Adams 1 (16/100-ac)	9600	3552
Deep Rock Oil Corp. & Murphy, H. Pritchard 12 (110-ac)	9200	3540
Fain-McGaha Oil Corp., E. W. Clements 11 (50-ac)	9500	3637
Gen'l Crude Oil Co.-Pet. Finance Corp., J. Williams 9 (62.54-ac)	750	3672
Humble, W. R. Hughes 45 (245.6-ac)	5000	3704
Pete H. Pewitt et al, O. J. Phillips 4 (119-ac)	2500	3714
Stidham & Thrasher, E. O'Byrne 9 (53-ac)	*	3800
Sun Oil Co., Crosby-Williams 2 (650-ac)	*	3552
Tide Water Associated, J. J. Castleberry 27 (202-ac)	30	3591
J. E. Watts et al, Eve O'Byrne 9 (71-ac)	3500	3819
ANDERSON COUNTY— (Long Lake)		
FHE Oil Co.-Fleming-Kimbell Corp., W. L. Moody 2 (775-ac)	*	5410
FHE Oil Co.-Palestine O & G Corp., H. L. Robinson 1 (40-ac)	1500	5349
FRANKLIN COUNTY (Talco)—		
Humble, L. P. Stuart 2 (35.01-ac)	416	4311
HENDERSON COUNTY— (Cayuga)		
Earl P. Corley et al, C. R. Litchfield 1 (9-ac)	2500	4096
O. M. Rector et al, Q. Sutton 1 (68.55-ac)	3500	4107
HOPKINS COUNTY— (Sulphur Bluff)		
Shell Pet. Corp., J. G. Reynolds 3 (200-ac)	1050	4535
TITUS COUNTY (Talco)—		
Adams & Lyles, Inc. Pat Davis 5 (41.7-ac)	481	4344
Pat Davis 10 (41.7-ac)	520	4330
B. G. Byars & Pounds, W. T. Edwards 3-A (30-ac)	360	4300
Housh & Thompson, Inc., J. Hargrove 4 (75-ac)	450	4336
Humble, A. P. King-Hughes 35 (1053.36-ac)	560	4318
A. P. King-Hughes 36 (1053.36-ac)	383	4297
Magnolia, J. A. Chapman 1 (341¾-ac)	48	4367
R. E. Moore, Tr., W. T. Edwards 3 (20-ac)	480	4300
J. A. Moore 1 (14.16-ac)	480	4300
J. A. Moore 4 (14.16-ac)	150	4332
Rozel Oil Corp.-Y. Rogers, Osborn 1 lot 3, blk 33	90	4350
Tide Water Associated, C. M. Carr 5 (75.37-ac)	264	4335
HOPKINS COUNTY—		
Robt. Goodrich et al, R. A. Logan 1 (87½-ac)	*	4583
CASS COUNTY (Rodessa)—		
American Liberty Oil Co., Echols 1, H. Holbert sur	775	6071
Magnolia, Hall 6, J. N. Jackson sur	280	6027
United Prod Corp., Belote 1, H. Holbert sur	264	6000
A. H. Bewley A-3, H. Holbert sur	330	5990
Hall 1, Wilson Robinson sur	280	6018
MARION COUNTY (Pine Island)—		
Morefield & Thompson, Potter B-2, R. Potter sur	30	940

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTH TEXAS

Wellington and Seaboard open field in Nueces County.

* * *

Lamar prospect's "closed" test will drill plugs.

* * *

Large Austin-Buda wells start much wildcatting.

Corpus Christi.—Wellington Oil Company and Seaboard Oil Corporation opened another oil field for Nueces County May 6 when they completed L. M. Dugger 1 as a producer at 3939½ feet. The well, located two miles south of Clara Driscoll field, was flowing at the rate of 18 to 20 barrels of 26 gravity oil per hour through 3/16-inch choke and was showing pressures of 420 pounds on tubing and 1020 pounds on casing. The sand had been cored from 3917-25 feet and casing landed at 3912 feet.

Dugger 1 is 990 feet out of the northwest corner of Section 125 and is in about 1620 acres of holdings of the Wellington and Seaboard concerns. The Texas Company, Mills Bennett Production Corporation, Navarro Oil Company, Sun Oil Company, C. C. Shumway, Magnolia Petroleum Company, O. W. Killam, Pan American Production Corporation, and others hold acreage in the general vicinity.

The discovery likely is at the top of the Discorbis and may be the same sand zone referred to as the Big Sand, productive in Refugio field.

Nueces County Record Set

Several miles northwest of this well and in the Agua Dulce area. United Production Corporation drilled the first well to go below 9000 feet in Nueces County, W. H. Harvey 1, Garcia Survey, stopped at 9002 feet, and is plugging back to test in sand at 7382-95 feet, likely in the Vicksburg.

Southern Minerals Corporation was preparing to deepen Richard King 1, Nueces County wildcat, from 6032 feet to 8000 feet, or production. The well, located 3 miles north of Agua Dulce and 1½ miles northeast of the Bentonville-King district, has had a number of good oil and gas showings and is being closely watched.

I. J. Allen and Seaboard Oil Corporation's J. O. Chapman et al 4 was coring below 6430 feet, nearing the deep sand of the Chapman Ranch field, Nueces County. It is one-half mile east of the discovery well, the only producer in this sand. Another well, midway between the discovery and the new test, is productive in a shallower horizon. Taylor Refining Company has started Styles 1, Section 18, which is 4600 feet north and east of the discovery well.

Preparing to Drill Plugs

Barnsdall Oil Corporation was prepairing to drill plugs in Kate Edwards 1-A, William Lewis Survey, Aransas County, having landed 9⅝-inch casing at 7525 feet, total depth being 7548 feet. No detailed information is available, but it is understood that this well is bottomed in sand showing both oil and gas. Several high pressure sands were encountered above this level and the test tried to blow out on various occasions. The large casing is being set so that the well can be carried ahead to great depth if the present production test fails. The well is completely closed to those desiring information and only hearsay data is available. It is on the Lamar prospect, where the company recently drilled Edwards 1 to 7997 feet and had a blowout, the test flowing both oil and gas.

Pettus getting reputation as district for blowouts.

Beeville.—Pettus District of South Texas is gaining the name of a blowout area. Hardly had one wild test been controlled when another broke loose. The newest is Ohio Fuel Supply Company's Rosebrock 2, in the Oakville district of Live Oak County, which has been flowing a great amount of salt water and gas after drilling to 2760 feet. The blowout, however, is believed to be from a sand in the Hockleyensis at 2108-18 feet.

Over in Bee County, Lonnie Glasscock et al's Albinger 1 was reconditioning hole to test a Yegua sand apparently encountered at 5932-44 feet. The well blew out when a core was being taken at this level and ran wild for several days, blowing a large amount of gas and spraying distillate. Tests indicate a bottom hole pressure of 3800 pounds at this level. The well is in the Ryan Survey and gives promise of being the second producer for Beeville field.

Several wildcats are being drilled in DeWitt, Goliad, Bee and Live Oak Counties and should be down to the expected producing horizons over the week end.

Drilling defines faulting in Branyon-Buchanan district.

San Antonio.—Branyon-Buchanan district of Caldwell County continues to be lined out with a series of large producers in the Austin-Buda series. The continued drilling has definitely defined the faulting and has established the trend of fracturing, thus increasing the ratio of large producers.

This is an entirely new type of development for South Texas and its work is being closely watched. Locations are being staked in positions to cut the faults in the chalk, thus increasing the possibilities of finding fissures from which the largest wells are obtained.

An illustration is Commonwealth Oil & Gas Company and Webster Oil & Gas Company's W. W. McCrory 2, which topped the chalk at 1925 feet and drilled to 2131 feet, where it flowed at the rate of 63.6 barrels per hour through ¾-inch choke, the gauge being for a period of 10 hours.

As a result of the success of the above field, a rather heavy wildcatting campaign has been launched along the trend with numerous tests being commenced in Bastrop, Caldwell, and Guadalupe Counties.

Reviving Old Edwards Lime Leases

Another source of production is Edwards limestone, which again comes to the fore as a flush development. Old leases, abandoned because of water intrusion, are being redrilled with only several inches of the lime taken in. The lime is then acidized, and in most cases excellent wells are completed. The Branyon area, which until recently was considered a non-productive field in the Edwards limestone due to the close relationship of the oil to the water, is providing new production through this method of development.

E. R. Cosby's W. H. Cosby 1, Maxwell Survey, about seven miles southwest of Lockhart in Caldwell County, was testing at 1847 feet. The well topped the Dobie section of the Edwards limestone at 1843 feet and the four-foot core showed considerable saturation. Casing was set atop the formation, but cement failed to hold, necessitating recementing.

W. J. Walton et al's Emma Hoffman 4, southeast offset to the northeast extension well of Zoboroski field, Guadalupe County, topped chalk at 2270 feet, about 78 feet higher than the offset well, and found saturation in the first seven-foot core. It appears to be an excellent producer. The condition in this well indicates that the field will extend materially to the northeast.

Amerada Petroleum Corporation is tied up by a fishing job in Halff & Oppenheimer 8, Frio County deep test, which ran an electric formation test at 9450 feet. The testing tool and line were lost in the hole and several days work has failed to recover it. Halff & Oppenheimer 1, an old abandoned well on the north side of the Pearsall field, has set a string of seven-inch casing to 5430 feet and will deepen from 6312 feet, where it showed sulphur water in the Edwards lime. Should this well fail to find deeper production, it will plug back and complete in the Austin chalk, topped at 5436 feet.

SOUTH TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
SAN ANTONIO DISTRICT		
BASTROP COUNTY—		
Spokane Oklahoma O&G Co., Caldwell 2, 4000 ft sel, 23,400 ft swl of Antonio Navarro sur A-53, nw of Cedar Creek	*	2412
CALDWELL COUNTY—		
Fred J. Adams, W. M. Ellison 6, Dillard Cooper sur (Branyon)	75	2326
J. R. Brinkley Jr., Oil Co., W. F. Trammell 2, Robt. H. Hunter sur, 1250 ft swl (Creek) 1000 ft w No. 1, 113-ac lse out of 170-ac lse	175	2035
Chiquita Oil Co., C. Robertson 4, J. A. Neill sur (Branyon-Buchanan)	1200	2207
Commonwealth Oil Co. & C. J. Webster Oil and Gas, W. W. McCrory 2, J. A. Neill sur (Branyon)	2250	2131
Adolph Dovre, M. W. Calliham 1-A, 150 ft nl, 180 ft wl of 205-ac tr, nw 180-ac lse, Dillard Cooper sur, 30 ft e No. 1 (junked and abnd.)	50	2235
Eckert & Son, J. M. Fulps 2, J. A. Neill sur (Branyon)	1800	2185
Ed-Will Oil Co., B. F. McConnell 2, W. Spillers sur (Buchanan) wo and acidized	900	2270
W. M. Vaughey et al, M. O. Flowers et al 4, Dillard Cooper sur (Branyon)	187	2200
GUADALUPE COUNTY—		
Diamond Half Oil Co., E. Bibbs et al 1, 660 ft sel and nel 66.6 ac lse out of 217-ac tr Joel W. Robinson sur (Darst Creek)	*	5510
HAYS COUNTY—		
R. D. Kelly, W. P. Donalson et al 1, 450 ft el, 360 ft sl of 105-ac tr, J. Vermandi gr	*	890
MEDINA COUNTY—		
J. H. Lynd & W. W. Fondren, J. H. Lynd 1, 330 ft wl, 330 ft sl 800-ac tr, A. Smeller sur	*	1400
LAREDO DISTRICT		
DUVAL COUNTY—		
Argo Oil Co. & John Clopton, Sm th Corkill Est. 4, 330 ft sel and swl of e¼ of sur 498	*	3806
Clark & Cowden Drlg. Corp., J. M. Richardson 3, 2310 ft wl and 330 ft sl of sur 5, perf 1680-1700 ft	¶5	3735
N. V. Duncan, Worden & Drought 7, GC&SF sur No. 151 (Charamousca)	25	1534
Humble, Dowdy-Fee 13, sec 272, (Seven Sisters)	*	3007
J. F. Welder 21-C, sec 554 (Loma Novia)	192	2683
Magnolia, Servando Benavides 25, blk 14, O'Hern & Seacord sub Mariano Arispe gr (Cole O'Hern)	352	2843
Rio Bravo Drlg. Co. and George Coates, Inc., W. R. Peters 3-B, sur 29 (Rancho Solo)	80	1842
W. R. Peters 4-B, sur 29 (Rancho Solo)	75	1858
The Texas Co., Bishop Cattle Co. 25, sur 57 (Loma Novia)	75	2570
Duval County Ranch Co. 3-B, sur 583 (Colmena), pb, td 1563 ft	¶5 & 25	1683
JIM HOGG COUNTY—		
Cole Pet. Co., Yeager Ranch 1, sur 452, 330 ft sl, 330 ft wl blk 2 n½ of sur 452	*	3258
French Oil Corp., Paula V. de Garza 4, sur 269 (Alworth)	¶10	1081
McMULLEN COUNTY—		
N. O. Berry, Raymond Plosczyk 2, James Gardner sur (Calliham)	*	1158
Big Rock Oil Corp., Henry R. Martin 1, 2750 ft el, 2750 ft northerly sl Emil N. Weiting sur No. 6, Ab 1213	*	525
National Pet. Co., H. L. Lark 3-C, Scrugham sur (Jacob)	25	980
L. J. Snyder et al, B. C. Claunch 1, M. Hely sur, 660 ft sl and el blk 3, B. C. Claunch subd	75	1058
WEBB COUNTY—		
Mills Bennett, A. S. Billings 17, sec 113 (Lopez)	240	2275
M. D. Slator 2, 330 ft nel, 330 ft nwl, blk 89, Mission Oil Co., sub Slator Ranch, J. V. Borrego gr	*	3020
Usher Carson-Wm. Vernor, C. H. Webster 1, sur 684 (Carolina-Texas)	*	3064
O. W. Killam, D. G. Garcia 1, Owens sur (Killam)	125	2029
Mortimer & Springer, Community Tract 2, sur 114 (Lopez)	360	2198
Mortimer & Springer, Marie Lopez 15-B, sec 112 (Lopez)	475	2255
Sun, S. Benavides 9, blk 376, Myrtle E. Hale subd, Mariano Arispe gr (Cole-O'Hern)	50	2920
ZAPATA COUNTY—		
W. C. Bob, J. M. Martinez 2, 450 ft nwl, 150 ft nel s¼, blk 22, W. R. Duke sub, Charco Redondo gr	*	722
Earl Callaway, Belen Bustamante 5, sh 8, Fansler Partition, Comitas gr (Escobas)	48	1216
Belen Bustamante 8, sh 8, Fansler Partition, Comitas gr (Escobas)	58	1218
Belen Bustamante 10, sh 8, Fansler Partition Comitas gr (Escobas)	50	1213
Belen Bustamante 11, sh 8, Fansler Partition, Comitas gr (Escobas)	52	1217
Sam Evans, M. Garza Est. 4, blk 19, C. A. Douglas sur, Zorro Ranch, Comitas gr (Escobas)	*	1400
Gilbreath Bros. (Allison), D. Bustamante 2, sh 10, Fansler Partition, Comitas grant (Escobas)	*	1155
Magnolia, Gonzales-Cuellar 3, Cuellar tr, Gerrito Blanco gr (Cuellar)	*	1573
Matthews Drilling Co. & Earl Callaway, Justina Garcia 6, sh 3, Fansler Part., Comitas grant (Escobas)	10	1066
Nordan & Morris (Allied Oil & Gas Co.), C. Bustamante 3, sh 33, Fansler Part., Comitas gr (Escobas)	30	1251
The Texas Co., Whitehead 98, Cerrito Blanco gr (Escobas)	12	1540
Texas Pipe & Supply Co., M. Bustamante 2, sh 9, Fansler Part., Comitas gr (Escobas)	35	1178
Valley Osage Oil Co., A. D. Haynes 2-B, blk 14, Haynes sub, Comitas & Villa grants	*	1181
CORPUS CHRISTI DISTRICT		
ARANSAS COUNTY—		
Landreth Prod. Co., McCampbell Ranch 1, sec 40 (McCampbell), perf 6529-39 ft	¶5 & 50	6545
CALHOUN COUNTY—		
Portilla Drlg. Co., P. H. Welder 14-C, Agaton Sisneros sur (Heyser)	550	5480
HIDALGO COUNTY—		
Daskam Bros., Osca Daskam 2, center of lot 14-A, Daskam subd in por 45	*	4256
Ralph E. Fair, Inc., M. L. Flores de Chapa 1, por 39 (Samfordyce)	350	2981
JIM WELLS COUNTY—		
Tom Graham & Gilcrease Oil Co., F. Bennett 1-D, SK&K sur (Premont)	140	2257
S. D. Sloane & D. B. Cogswell, D. D. Nash 2, sec 76, blk 118 (Premont)	*	2362
LIVE OAK COUNTY—		
Loma Oil Co., L. C. Anderson 1, 330 ft nel 990 ft sel of 261-ac tr in J. Turner sur	*	1502
NUECES COUNTY—		
Baltic Drilling Co., Frank Harmon 4, George Frank sur No. 416 (Saxet) perf 6743-49	425	6970
R. B. Bryant, Fred Frank 6, George Frank sur (Saxet), perf 6255-60 ft	465	6650
Camp Prod. Co., C. Phillip Wardner 1, 330 ft el, 1250 ft nl of sec 12, Charles E. Stratton sub., perf 5992-6002 ft	75	6715
Crown Central Pet. Corp., Rand Morgan 6-B, sur 592 (Saxet)	650	4453
Gem Oil Co., J. T. Smith 3, lot 20, sec 47, Flour Bluff & Encinal Gardens Tract (Flour Bluff)	550	6673
Tom Graham, Ida Harmon 3, sur 416 (Saxet)	750	6739
Houston Oil, Rand Morgan 22, sec 7, Range 5 (Saxet)	725	4425
H. H. Howell & R. B. Bryant, Rand Morgan 2, sur 415, BS&F (Saxet), perf 5763-5769	625	6328
Humble & Barnsdall, Josie Miller 2-B, sec 48 (Flour Bluff)	750	6663
Kepley Prod. Co., V. M. Donnigan 3, sec 7, Range 6, (Saxet), perf 4860-61½ ft	450	4905
The Maryland Corp., C. C. Carson 1, G. Frank sur (Saxet), perf 5763-69 ft	¶10 & 75	6940
T. P. Morgan & Chapman Minerals, Morgan-Clark 6, sur 405 (Saxet), perf 5857½-67½ ft, td sd hole 5872	575	7184
Pan American Prod. Co., Solar-Sevier 2, sur 582 (Saxet)	620	6293
R chardson Pet. Co., C. J. Hoelscher 2, blk 22, Russell Farm lots (Saxet)	550	4458
Wellington Oil Co. & Seaboard Oil Corp., L. M. Duggar 1, 990 ft nl and wl of sec 125, Geo. H. Pauls sub Driscoll Ranch (S. Clara Driscoll)	950	3929
REFUGIO COUNTY—		
Quintana Pet. Corp., Tom O'Connor 47-A, Swisher sur 3 (Tomoconnor)	825	5960
Tom O'Connor 14-C, Swisher sur 3 (Tomoconnor)	1250	5950
United Prod. Co., M. F. Lambert 41, Swisher sur, blk 35 (Tomoconnor)	950	5915
SAN PATRICIO COUNTY—		
Humble, J. W. Mayo 20, W. Ottman sur (Taft)	235	4360
Shell, G. W. Pullin 6, 2nd Add Taft Farm Lands, in blk 4 (Taft)	185	4923
VICTORIA COUNTY—		
Barnsdall & American Liberty, Pickering-Roos 15, SA&MG sur 6 (Placedo)	475	4775
Magnolia Charlie Sklar 7, SA&MG sur A-304 (Placedo)	525	4775
Shell, Houston Nat'l Bank 3, blk 6, SA&MG sur A 304 (Placedo)	585	4770
Superior Oil & Gas Co. & F. A. Gillespie & Son Co., J. Hosek 7, blk 7, SAMG sur, ab 304 (Placedo)	620	4771

*Failures; †Junked; ¶Million cu. ft. gas.

Coring for Cockfield

McAllen.—Transwestern Oil Company's T. B. Slick Estate 2, Starr County wildcat, was coring for Cockfield sand below 5620 feet. This well is about ½-mile south of Slick Estate 1, which earlier in the year showed both oil and gas in the same horizon at 5571-6507 feet, but was abandoned due to mechanical difficulties. The well, projected to 8500 feet, is one of the most important tests in the Rio Grande Valley district of South Texas.

Two other deep valley wildcats are at critical stages. Shell Petroleum Corporation's Yturria 1, La Sal Viejo prospect in Willacy County, was going ahead at 9325 feet, while Stapper Petroleum Corporation's Port Isabel 1, in Cameron County, was below 7630 feet.

Several pipe line projects announced in South Texas

San Antonio.—Several pipe line projects and one new refinery development were assured during the past week in South Texas.

Humble Pipe Line Company is constructing a six-inch line from its Viola pump station about eight miles east to Corpus Christi to connect with the Southwestern Oil and Refining Company's refinery. Humble will deliver crude from the Loma Novia field of Duval County to this refining concern. The latter company was formed last year by Harry E. Clark, George B. Eggleston and Jack Minkow, and a renery has been erected in the coast city.

Buy Potter Properties

Amsco Refining Company interests, owned by the American Mineral Spirits Corporation, has acquired the Potter Pipe Line Company's gathering system, loading dock, tanks and 10-inch loading line and facilities in Corpus Christi port, as well as pipe line to the Saxet and Saxet Heights fields of Nueces County. The consideration was not made public.

Along the line of the above Mansul Oil Purchasing Company has been granted an amendment to its charter to change the name to Amsco Oil Purchasing Company, with headquarters in Corpus Christi. Sulley Pipe Line Com-

pany, likewise, has been officially changed to the Amsco Pipe Line Company.

The above concern recently completed a refinery at Corpus Christi for the purpose of manufacturing painters' naphtha for American Mineral Spirits Company. The South Texas low gravity crudes prove unusually good for this type of product.

Outlet for Ganado

The Texas Company has commenced a five-mile six-inch line from its newly discovered Ganado field, Jackson County, to Mauritz field, where it will tie into the Shell Petroleum Corporation's line to the Markham eld. At the latter point, the crude is to be diverted to the Texas Pipe Line Company's trunk line along the Gulf Coast.

The new refinery project is in the recently opened La Blanca field of Hidalgo County, where two oil and gas wells have been completed in a 7800-foot sand. These wells have a high gas-oil ratio and produce unusually high gravity oil, which is to be processed through a skimming plant of approximately 1000 barrels daily capacity. This plant is to be constructed by the Clymore Interests of San Antonio.

Sweden Area Very Active

Laredo.—With 10 wells either drilling or being started in the Sweden area of Duval County, this new Mirando district trend comes in for one of the most active developments in the history of the territory. Seven of the wells are in the new North Sweden field, 2 in the area to the south, and the other a wildcat several miles south of the field.

Several of the wells in the immediate sector of the North field are nearing the Hockleyensis sand found in Frank Gravis' discovery well, and their outcome will have an important bearing on the future development.

Hiawatha Oil & Gas Company's Southland Life Insurance Company 1, Section 15, 1075 feet west and north of the discovery well of Sweden, drilled to 5939 feet, ran electric formation tester and set casing. It has been perforated in a sand section at 5672-91 feet. This sand is 140 feet higher than that in the discovery well, but is believed to be the same horizon. Indications are that the well cut a fault with a displacement of at least 140 feet. The structural feature of this field is a great deal of faulting, and development likely will be materially accelerated as soon as the producing limits are outlined.

Several miles to the south, George V. Viteri et al's Cadena 1, Hinojosa Grant, was drilling ahead below surface casing.

Penwell Hearing May 13

Austin.—The Texas Railroad Commission has called a hearing on the Penwell field in Ector County to be held in Austin on May 13.

At that time the commission will consider general rules for the field, including the method of allocation and spacing regulations.

Completion of a new well near this field recently has resulted in raising the question of the limits of Penwell. This matter will also be a subject for discussion at the hearing.

TEXAS GULF COAST

Claiborne oil gives Spurger major field aspect.

* * *

Republic and Houston Oil extend Silsbee north.

* * *

West outpost adds to Turtle Bay proven area.

Houston.—Spurger field, Tyler County, takes on the appearance of major importance with Republic Production Company and Houston Oil Company establishing production from an unidentified formation in Claiborne age which will no doubt lead to play along the Conroe trend.

The first part of last week a production test was made on Hurd 2, N. Hurd Survey, and it made 300 barrels of 43 gravity pipe line oil daily through ¼-inch choke, with tubing pressure of 890 pounds and casing pressure of 700 pounds, from sands at 7621 to 7641 feet. Seven-inch casing was set at 7620 feet.

After completing Hurd 2, the companies announced location for Hurd 3 approximately 1000 feet west and in the same survey. Derrick will be skidded for the drilling.

Two More From Cockfield

Silsbee field, Hardin County, was extended 1866 feet north when Republic Production Company and Houston Oil Company completed Brooks 9, G. W. Brooks Survey, making 480 barrels of oil, 25 percent basic sediment and water, through ¼-inch choke, with tubing pressure of 1600 pounds and casing pressure of 1800 pounds. The oil is from Cockfield sands at 6905 to 6915 feet. Another test was also completed by the two companies last week in Silsbee. Brooks 12, 933 feet west of Brooks 3, came in making 440 barrels of pipe line oil daily through ¼-inch choke. The well is also a Cockfield producer, sands being at 6834 to 6845 feet. Seven-inch casing was cemented at 6824 feet.

West of production at Segno, Polk County, LaQuinta Oil Company's Wing 1, I&GN Survey, Section 15, was completed at 5199 feet for 20 barrels per hour through ¼-inch choke. On a potential test the well made 620 barrels daily through ¼-inch choke with tubing pressure of 620 pounds and casing pressure of 400 pounds. The company has made location for Wing 2, west of Wing 1 in the I&GN Survey, Section 15.

Extend Turtle Bay

Production at Turtle Bay field, Chambers County, was extended ½ mile west last week when Stanolind Oil & Gas Company completed Silva 1, S. Burney Survey, for 145 barrels of pipe line oil in 7 hours through 3/16-inch choke, with tubing pressure of 975 pounds and casing pressure of 850 pounds. The extension was completed in sands from 6904 to 6915 feet. Seven-inch casing was set at 6604 feet.

A new location was made at Seabreeze last week by Sun Oil Company. Acom 2 is 1400 feet south of the north line and 1300 feet west of the east line of H&TB Survey, Section 103, Chambers County.

Sun Oil Company's Ward 1, third well at Labelle, Jefferson County, was down to the pay sand at 8578 feet at the close of the week. A string of 9⅝-inch casing will be set. Ward 1 cored a gas sand from 8320 to 8325 feet.

Another producer was completed at Nome field, Jefferson County, by Shell Petroleum Corporation; Texas Public Service Company 1, 933 feet east of Paggi 5, W. H. Aldridge Survey, made 418 barrels of pipe line oil daily through ¼-inch choke, with tubing pressure of 550 pounds and casing pressure of 650 pounds. Sand showing oil was logged from 5990 to 6050 feet.

After discovering a new sand at Fannett in Junker 7, Gulf Oil Corporation announced location for Junker 8, 1150 feet west along the north line from the northeast corner of a 260-acre tract and 1140 feet south at right angles to said line, being approximately 640 feet from Junker 7, W. H. Smith League, Jefferson County.

In the Pine Island area, Jefferson County, H. B. Hebert and S. S. Smith made location for Broussard Trust 1, 466 feet out of the northwest corner of SW½ of E½ of J. W. McGaffey Survey.

Fairbanks Outpost Cores Gas Sand

Approximately 3000 feet southwest of production at Fairbanks field, Harris County, Stanolind Oil & Gas Company's Jacobs 1, W. C. R. R. Survey, Block 1, Section 2, was shut down at 6840 feet in gas sand waiting on orders at the close of the week. Jacobs 1 topped the gas sand at 6724 feet and continued in the broken formation to 6840 feet.

Oil sand was logged from 6423 to

6435 feet in Shell Petroleum Corporation's Ramsey State Prison Farms 3, approximately 2100 feet east of production, Lochridge field, Brazoria County, last week, and the hole was carried on down to 6381 feet in shale before the test was shut down for orders.

Gulf Oil Corporation abandoned Reiss 1, J. W. Hall Survey, Lochridge, Brazoria County, at 8560 feet in heaving shale. Several sands showing oil, gas and salt water were cored, but none was saturated enough to have commercial possibilities.

A mile southwest of production at Lochridge, Gulf Oil Corporation was completing Woods 1-A at 6386 feet. The past week a production test was made, and when the extension well started flowing oil and wash water it sanded up. The hole is to be cleaned out and another test will be made.

Three miles southwest of Buckeye field, Matagorda County, United North & South Development Company's C. Q. Stoddard 1, M. Cotton Survey, was coring sand and shale with sandy shale at 9839 feet at the end of the week. Broken formations from 9833 to 9837 and from 9837 to 9839 feet had good odors of oil. It is not know how far the crew will drill the well, but it is rumored that it will go to 10,000 feet.

TEXAS GULF COAST

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
AMELIA—		
Humble, Pinchback 3	648	6778
ANAHUAC—		
Gulf, Wilcox 5	660	7100
BIG CREEK—		
Gulf, Davis 75	50	3620
DICKINSON—		
Atlantic, Roberts 1	384	8134
Coast Pet. Corp., Maco Stewart 6	700	8875
Humble, Maco Stewart A-18	696	8936
HANKAMER—		
Gulf, R. I. Weiser A-2	¶1	3407
HASTINGS—		
Walter Gholston & Humble, Ross 1	615	6095
Navarro Oil Co., Callahan 2	646	6000
Stanolind, Avitts 3	648	6080
A. W. Condon 2	432	5908
F. Drake 9	648	6157
Law 3	648	6076
S. Paul 3	637	6080
HIGH ISLAND—		
Stanolind, Cade 61	310	5457
LAKE VIEW—		
Smith & McDaniels, Hulburt 1	*	5003
LIVINGSTON—		
Owenby Dr. Co., Munson 2	*	4325
LOCHRIDGE—		
Gulf, F. Reiss 1	*	8560
MANVEL—		
Olsen Dr. Co., Nickels 2	*	4042
NOME—		
Shell, Texas Public Service 1	418	6050
ORCHARD—		
Gulf, Moore 49	81	7428
RACCOON BEND—		
Humble, Hardy 11-X	*	4165
Paine 21-X	144	4110
SEGNO—		
LaQuinta Oil Co., Wing 1	620	5199
SILSBEE—		
Republic Prod. Co., Brooks 9	480	6915
Brooks 12	440	6845
SOUR LAKE—		
Texas Co., Fee 322	¶¼	1793
SOUTH HOUSTON—		
Stanolind, Worley 1	206	4894
SPANISH CAMP—		
Albert Plummer, Cloud 1	¶2	2975
SPURGER—		
Republic Prod. Co., Hurd 2	300	7641
TOMBALL—		
Humble, Handy B-1	480	5564
C. Holderrieth B-2	600	5562
Stanolind Silva 1	540	6914
FT. BEND COUNTY—		
Research Inc., Moore 1, ne of Orchard, S. Kennedy sur	*	3503

*Failures; †Junked; ¶Million cu. ft. gas.

New deep drilling records are being established every day in Continental Oil Company's Robbins 2, C. Frans Survey, Citrus Grove prospect, Matagorda County. Last week the well was down below 11,235 feet. It is penetrating formations at the rate of over 100 feet a day. With this rapid rate of drilling the well will be down below 12,000 feet in a short time. It is already the deepest well drilled in the Texas Gulf Coast and is the second well in Texas to go below 11,000 feet. Not only has it established records in deep drilling, but also it has evidently whipped heaving shale. It is understood to be the first well in the area to drill through that formation.

Wharton County Gets Two Locations

Two new locations were announced in Wharton County last week. Albert Plummer and Felmont Oil Corporation's M. Sorrell 1 is approximately 1900 feet east of Cloud 1, S. F. Austin Survey, Section 1, Abstract 4. Their Cloud 1 made 1,800,000 cubic feet of gas daily through ¼-inch choke, with tubing pressure of 1050 pounds and casing pressure of 1250 pounds, from Miocene sands at 2996 feet. In the Lakeview area Smith & McDaniels made location for Martin 1 in the I&GN Survey, Section 16.

A potential test on Texas Crusaders Oil Company's Fee 1, discovery well for Magnet field, Wharton County, last week showed 386 barrels of 25 gravity oil and over 300 barrels of water through ½-inch choke, with tubing pressure of 100 pounds and casing pressure of 75 pounds. Fee 1 was completed several months ago, but due to mechanical troubles the operators could not get it to flow pipe line oil. Fee 1 was completed in sands from 5546 to 5556 feet. Top of sand was logged at 5548 feet and 7-inch casing cemented at 5646 feet.

Smith & McDaniel's Hurlburt 1, I&GN Survey No. 23, Wharton County, was abandoned at 5003 feet after encountering salt water from 4517 feet to the bottom of the hole.

Dickinson field, Galveston County, received 3 new producers last week. Atlantic Refining Company's Roberts 1, P. G. Merritt Survey, was completed at 8134 feet for 470 barrels of 39.8 gravity oil daily through ¼-inch choke with tubing pressure of 2250 pounds and casing pressure of 2700 pounds. Casing was perforated from 8115 to 8118½ and from 8122 to 8131 feet. Humble Oil & Refining Company's Maco Stewart A-18, W. K. Wilson Survey, made 29 barrels per hour through ¼-inch choke from sands at 8921 to 8941 feet. Seven-inch casing was cemented at 8911 feet. Coast Petroleum Corporation's Maco Stewart 6, W. K. Wilson Survey, made 700 barrels daily through ¼-inch choke from 8875 feet.

Municipalities May Lease

Austin.—Governor James V. Allred has signed House Bill 861 which gives political subdivisions the right to lease their land for mineral development.

The law will allow any city, county, school district, or other political subdivision to lease its property for oil development.

We've changed our NAME

To Better Apply to the Expansion Under Which Our Organization Has Gone to Meet the Oil Industry's Demand for Our Products and Service.

Authorized Appleman Bit Service Company, organized in 1930 to distribute and service a single type of drilling bit, has grown in six years to the position of leadership in its class of service in the Gulf Coast with a complete line of bits and the Hunt Wire Line Core Barrel, plus a complete repair service on all classes of drilling equipment.

HUNT TOOL COMPANY, successor to the original firm, employs 110 men, operates 38 trucks and cars, and has field branches at the following points: Joinerville, Talco, Corpus Christi, Bay City and Alvin, Texas; and Rodessa, Jennings and Houma, Louisiana.

SOUTH LOUISIANA

Production from 12,014 feet looms as possibility.

* * *

2200-foot Charenton extension has new sand.

* * *

Well extends St. Martinville 1000 feet northwest.

Lake Charles. — Houma gas field, Terrebonne Parish, may be the first field in the world to yield commercial oil or gas below 12,000 feet. Humble Oil & Refining Company's Elender 1, Section 23-19s-19e, perforated casing with one shot at 12,014 feet and showed a shut-in pressure of 250 pounds on the tubing. When the well was perforated it started kicking mud out of the hole and the blowout preventer had to be closed. At the end of the week the operators rigged up another blowout preventer and a bottom hole choke.

It was the intention of the company to perforate casing with 12 shots at 12,014 feet, but only one shot exploded. This is the first time that a well was ever perforated below 12,000 feet. In perforating the well it was necessary to splice a line to make it long enough to reach to 12,014 feet. However, it might have been the best thing for only one shot to explode at this time because it was found out that surface connections might not have held the well under control. Fluid under a pressure of 3000 pounds was pumped back in the hole, and after this was done a new blowout preventer was installed.

Humble Oil & Refining Company's Elender 1, set seven-inch casing at 10,097 feet in 24 hours with 400 sacks of cement. This is the longest string of seven-inch casing ever set. The dead weight when setting the long string of casing was over 168½ tons. The 136-foot steel derrick and the all steel substructure withstood this weight and only settled a few inches.

New Sand at Charenton

Charenton field, St. Mary Parish, was extended 2200 feet southeast when Pan American Producing Company's South Coast Corporation 1, Section 30-13s-10e, logged a new deep sand approximately 700 feet below the regular producing sand and showed 311 barrels of 34.6 gravity pipe line oil in 12 hours through a quarter-inch choke, with a tubing pressure of 800 pounds and a casing pressure of 700 pounds from Miocene sands at 7923 feet on a production test.

The extension test was drilled and cored to 7923 feet in sand showing oil after logging the top of the sand at 7908 feet. A drill stem test was taken with the seat at 7906 feet and showed 1000 feet of pipe line oil on the five-minute test. South Coast Corporation's 1 is the best well yet completed in the field.

St. Martinville Extended Northwest

St. Martinville field, St. Martin Parish, was extended 1000 feet northwest last week when Tide Water Associated Oil Company's Smedes 3, Section 57-11s-6e, cored sand showing oil from 5525 to 5563 feet and set 7-inch casing at 5551 feet for a production test.

Smedes 3 is in the same sand from which the discoverw well is producing, but is a little higher than the first commercial producer for the area. The discovery well, completed at 5582 feet, is the only producing well at St. Martinville. It has yielded over 375,000 barrels of oil. Every side of St. Martinville field has been drilled except the northwest side, and only this side has shown evidence of commercial oil. Tide Water Associated Oil Company is drilling another well northwest of Smedes 3, and it, Smedes C-1, was drilling in shale at 5147 feet and should be down to the producing sand the coming week.

English Bayou Extended Southeast

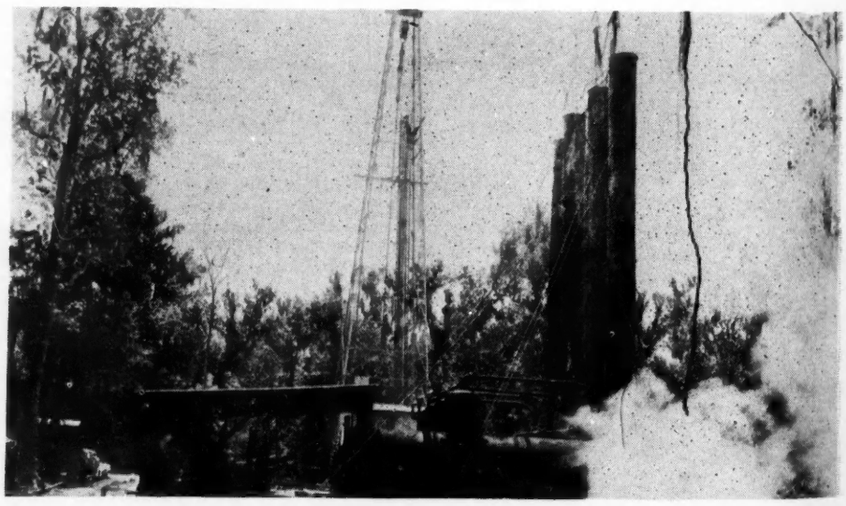
Approximately 2000 feet southeast of production at English Bayou, Calcasieu Parish, Fohs Oil Company completed First National Bank 1, Section 13-9s-8w, flowing 250 barrels of oil daily through a 20/64-inch choke, with a tubing pressure of 375 pounds and a casing pressure of 690 pounds from sands at 7041 to 7044 feet. Five-inch casing was perforated with 10 holes from 7041 to 7044 feet. A production test of this same sand the previous week was unsuccessful.

On the northeast side of Gillis field, Calcasieu Parish, Union Sulphur Company was making a production test on Barbee Estate 14, Section 1-9s-8w. The hole was drilled and cored to 6730 feet in sand showing oil after logging the top of the sand at 6725 feet. Seven-inch casing was cemented at 6723 feet. After making a production test at this depth which showed oil and salt water, the hole was plugged back to 6719 feet and the casing was perforated with 30 shots from 6711 to 6717 feet. A test showed gas and oil, so screen and liner was run.

Lafitte Being Extended Northeast

Lafitte field, Jefferson Parish, was being extended northeast at the end of the week when The Texas Company was preparing to make a production test on L. L. E. Lafitte 6, Section 29-17-24-e. Seven-and-five-eighths-inch casing was perforated with 233 shots from 9998 to 10,018 feet, and the well was being washed in for a production test. L. L. E. Lafitte 6 was drilled to 10,368 feet in shale, and the 7⅝-inch casing was set at 10,204 feet. This well will probably be the third 10,000-foot producer at Lafitte field.

On the south side of East Hackberry field, Cameron Parish, The Texas Company's State B-21, Section 44-12s-9w, was coring sand showing oil at 7557 feet. Sands showing oil were encountered from 7377 to 7396 feet, 7482 to



After five feet of water had receded around Pan-American Production Company's South Coast Corporation 1, southeast extension at Charenton, St. Mary Parish, it drilled on down and discovered a new producing sand at 7923 feet. It came in the past week as the best oil well in the field.

7509 feet, and at 7527 feet. Good signs of commercial oil production was shown by an electrical logging device.

At Valentine field, Lafourche Parish, Pan American Production Company was plugging back on Harange 4, Section 8-17s-20e, after swabbing salt water at 7190 feet. The hole will be plugged back and the 5400-foot sand tested. Harange 4 encountered sand showing oil from 7120 to 7190 feet, and seven-inch casing was set at 7120 feet. Salt water was swabbed. After plugging the hole back, the sand from 5414 to 5432 feet will be tested. This sand showed 1170 feet of oil on a five-minute drill stem test. The company's Harange 3, Section 8-17s-20e, was plugging back to 5154 feet at the end of the week after failing to cut and pulling casing at 7718 feet.

After drilling to 10,959 feet in State Lake Barre 37, The Texas Company plugged the hole back to 2143 feet. State Lake Barre 37, Section 30-21s-20e, Terrebonne Parish, was redrilled to 3546 feet in salt after logging the top of the salt at 3008 feet. The hole was again plugged back to 2143 feet and was sidetracked again. The hole was carried down to 3766 feet in sand showing oil. Top of the sand was found at 3743 feet, where a string of seven-inch casing was set. Before plugging State Lake Barre 37 back to 2143 feet a string of 9⅝-inch casing was set at 8063 feet.

Another Johnson Bayou Failure

Another failure for Magnolia Petroleum Company at Johnson Bayou prospect, Section 9-15s-14w, Cameron Parish, was recorded when the company abandoned Albert Dobbertine 1 at 8309 feet in shale. The well failed to show anything of commercial importance.

After discovering a salt dome in City of New Orleans 1, William Helis decided to abandon the Marchland prospect wildcat in Section 19-23s-23e. It was drilled to 8012 feet in salt after logging the top of the formation at 7464 feet.

SOUTH LOUISIANA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BLACK BAYOU—		
Shell, Watkins 37	*	3588
CHARENTON—		
Pan American Prod. Co., South Coast Corp. 1	622	7923
ENGLISH BAYOU—		
Fohs Oil Co., First National Bank 1	250	7044
GILLIS—		
Union Sulphur, Powell Lbr. Co 12	355	6714
JENNINGS—		
S. Rhodes, Iowa Jennings 1	195	3646
Stanolind, Houssiere Latreille 18	¶1½	7072
Superior, E. Crowley 2	150	3598
LEEVILLE—		
Gulf, City of New Orleans 1	*	6346
Texas Co., L. L. E. Leeville 61	470	3905
NEW IBERIA—		
Texas Co., Hanszen B-5	1190	4736
SULPHUR—		
Union Sulphur, Fee 840	45	3289
TEPETATE—		
Continental, Homeseekers D-2	184	8322
WEST HACKBERRY—		
Stanolind, Duhon 1	*	5360
CAMERON PARISH—		
Magnolia-Humble, Albert Dobbertine 1, Johnson Bayou prospect, 9-15s-4w	*	8309
LAFOURCHE PARISH—		
William Helis, City of New Orleans 1, Marchland prospect, 19-23s-23e	*	8012

*Failures; †Junked; ¶Million cu. ft. gas.

Prorated wells share in production increase.

* * *

New Lea County operations show decrease.

* * *

North end Eunice wells showing small production.

Hobbs, N. M.—All prorated wells in New Mexico shared in the 7600-barrel gain in production allowable granted effective May 1 by the Oil Conservation Commission. The increase boosts the output of the state to a new peak level of 114,000 barrels daily, or 14,200 barrels above the level recommended by the United States Bureau of Mines for the current month.

Lea County fields served by major buyers were allotted 4900 barrels of the increased allowable, and the remainder went to the group of fields comprising the Artesia district, with the Getty pool receiving a cut of 300 barrels to coincide with market demand. Allowable production of the Artesia district was boosted 3000 barrels to 6315 barrels daily in order to permit Trans-Pecos Pipe Line Company to fill a foreign crude contract. However, this concern will not be readly to handle oil for several weeks through its completed 33-mile, 5½-inch carrier, which extends from Grayburg area to Lynch field, where conection is made with the Texas-New Mexico Pipe Line Company, as necessary large tanks have not been completed at the Lynch terminus.

Assignment of the added allowable to Lea County resulted in the boosting of the output of wells prorated on a flat basis from 89 barrels to 92 barrels daily. Monument field, which is prorated on a combination acreage and average bottom hole pressure basis, gained 2157 barrels on the new schedule, making a new record of 32,428 barrels from 359 wells. This field is destined to surpass the Eunice field, leader for months, in allowable production before June 1 because of having a greater number of pending completions.

New Operations Drop

New operations in Lea County dropped below the normal volume the past week in accounting for only 8 new locations, as compared to 15 the previous week. There were 16 completions on the latest field report, and Amerada Petroleum Corporation contributed 4 out of a total of 7 recorded for the Monument field. This concern's Laughlin 2, C NE NW 9-20s-37e, 3 locations west of a failure on the east edge of the field, flowed 850 barrels of pipe line oil in 7 hours on 1-inch choke from lime at 3861 feet, or 301 feet subsea, with a gas/oil ratio of 438 feet per barrel. It was not acidized. Initial yield of 120 barrels oil in 2 hours through 45/64-inch choke was scored by the company's State 3-V, SE SE NE 36-19s-36, after using 2000 gallons of acid at 3915 feet, and W. P. Byrd 6, C SW SE 12-20s-36e, flowed 409 barrels in 5-2/3 hours through 1-inch choke after using same amount of acid at 3870 feet. State 1-X, C NW SW 16-20s-37e, failed to develop flush yield comparable to the Continental Oil Company's offset producer which broke loose and burned for a week, but gauged 308 barrels oil on 1-inch choke in 7 hours from lime at 3835 feet, with packer set at 3818 feet to exclude heavy gas production.

Loss of returns by Repollo Oil Company's B. J. Barber 7, NE SW NW 8-20s-37e, remained unchecked early last week after drilling to 3840 feet. Water was being pumped into the hole to try to establish circulation believed to be escaping into a crevice at 2940 feet. Revised check reveals that 2000 tons of clay and manufactured weighting compounds; 60 tons of cottonseed hulls and carloads of cement and fibretex have been pumped into the hole since the original blowout at 2616 feet in March resulted in a flow of 156,600,000 feet of dry gas. This concern's J. R. Phillips 4-A, NW NW SW 31-19s-37e, also an inside location, showed mostly gas after using acid at 3915 feet, and has plugged back to 3875 feet to attempt a cement squeeze job as a means of cutting off some of the big gas flow.

The Texas Company's State-Lieu-Lands 7, C NE NW 20-20s-37e, located on the south line of production in the Monument area, responded to treatment with 6000 gallons of acid in two applications at 3710-3864 feet with a flow of 21 barrels of oil per hour. This company has started operations on State-Lieu-Lands 8, NE SE NE 20-20s-37e, offsetting small producer recently completed by Repollo Oil Company, and also Saunders 3, C NW SE 18-19s-37e, located on north end of the field. Gulf Oil Corporation's State-Bell

2-G, C SW SE 13-20s-36e, is a new operation for the southwest edge of production.

Makes 48 Barrels Hour

Largest producer for the Eunice area during the week was from the southwest border. The Texas Company's J. M. Rector 4, C SW SE 30-21s-36e, flowed 48 barrels per hour through 1-inch choke at 3950 feet, or 330 feet sub-sea. First oil saturation was logged at 3815 feet, and the last foot of formation contributed the steady oil flow. Continental Oil Company et al's Lockhart 4-A-30, SE SW NE 30-21s-36e, flowed an average of 23½ barrels per hour natural for 8 hours via casing with drill pipe in hole at 3930 feet.

Three tests on adjoining sites being drilled by Phillips Petroleum Company on the north end of the Eunice lime area and 1 mile south of production in the Monument field, are showing for small producers. This company's State-Mex 1, C NE NE 30-20s-37e, yielded mostly gas when unloaded at 3843 feet, and has been shot with 140 quarts of nitro at 3803-43 feet. State-Quapaw 1, north offset, failed to make its allowable when tested at 3840 feet, or 310 feet sub-sea, and has been treated with 1000 gallons of acid. State-Hudson 1, C NW NE 30-20s-37e, swabbed 192 barrels oil in 10 hours at 3850 feet, and has also been treated with acid.

Repollo Oil Company's Frances Stuart 2-B, SW NE SE 10-25s-37e, offsetting production in the Langlie field, has been completed flowing 98 barrels natural through open tubing from sandy-lime at 3380 feet.

Amerada Petroleum Corporation's J. L. Isbell 3, C SW NE 15-24s-36e, offsetting production in the Cooper field, flowed 357 barrels of pipe line oil through 1-inch choke in 7 hours after using 1000 gallons of acid at 3600 feet, or 218 feet sub-sea.

NEW MEXICO

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
LEA COUNTY (Eunice Field)—		
Gulf, State-Arnott-Ramsey 12-C, c nw se 21-21s-36e	2000	3885
State-Bell 3-F, c se nw 36-20s-36e	500	3849
Ohio, State-McDonald 5, c se nw 16-22s-36e	1000	6202
The Texas Co., J. M. Rector 4, c sw se 30-21s-36e	2500	3950
LEA COUNTY (Cooper Field)—		
Amerada, J. L. Isbell 3, c sw ne 15-24s-36e	2000	3600
LEA COUNTY (Hardy-North Eunice Field)—		
Gulf, J. M. Carson 1, c ne sw 28-21s-37e	104	3780
LEA COUNTY (Hobbs Field)—		
Stanolind, Thorpe 7-X, c w½ nw ne 10-19s-38e	16,135	4201
LEA COUNTY (Langlie Field)—		
Culbertson, Irwin et al, J. R. Stuart-Repollo 3, ne se sw 10-25s-37e	300	3415
Repollo Oil Co., F. Stuart 2-B, sw ne se 10-25s-37e	98	3380
LEA COUNTY (Monument Field)—		
Amerada, W. P. Byrd 6, c sw se 12-20s-36e	3000	3870
M. E. Laughlin 2, c ne nw 9-20s-37e	4000	3861
State 3-V, se se ne 36-19s-36e	3000	3915
State 1-X, c nw sw 16-20s-37e	2400	3835
Gulf, State-Bell 1-G, c se se 13-20s-36e	2000	3875
Repollo Oil Co., W. P. Byrd 4, ne se nw 11-20s-36e	1500	3901
The Texas Co., State-Lieu-Lands 7, c ne nw 20-20s-37e	500	3864

*Failures; †Junked; ¶Million cu. ft. gas.

ROCKY MOUNTAIN FIELDS

East end at Lance Creek to get Sundance test.

* * *

New black-oil field is prospect in Wyoming.

* * *

Contract let for two deep tests at Badger Basin.

Casper, Wyo.—Drilling of a test to the Sundance in the east end of the Lance Creek field, Niobrara County, eastern Wyoming, is expected within the near future as Continental Oil Company this week put on record a sizeable block of acreage covering the east end of Wyoming's most active oil structure. The block contains several tracts of government land and unitization of the east end of the field has been effected, so that the drilling of a deep test to the untested Sundance at Lance Creek is assured if the company is to protect its acreage. The block embraces Sections 21, 22, 23, 26, 27, 28, part of 29, Sections 30 and 31, and the north halves of 32-33, 34 and 35, all in Township 36 North, Range 64 West.

Only one producing well has been completed in the east end of Lance Creek. In 1919 Western States Oil & Land Company completed a well in the SW NE 28-36n-64w, which has since been taken over by Argo Oil Corporation and has produced more than 140,000 barrels of oil in 18 years. The well completed in the Dakota sand at 3956-4008 feet, and is still making around 30 barrels daily. It is 6 miles from the nearest Sundance producer on the west end and developed part of the Lance Creek field. Wells drilled a half-mile to the north and southwest were failures in the Dakota.

One new well started in the Lance Creek field this week while several locations released recently got under way. Deepening operations were begun on three old producers. Continental Oil Company is moving in rotary for Schuricht 4-B, NWc SW SE 6-35n-65w, an east offset to A. B. Cobb's Nat Novick 1, which recently completed for 40 barrels per hour at 3697-3990 feet, extending the field a 40-acre location to the south and west.

Offsetting his Novick 1 to the south, A. B. Cobb is rigging rotary for Novick 2, SEc SW 6-35n-65w, while MacKinnie Oil & Drilling Company in Thompson 2, NEc NW 7-35n-65w, waiting on cement to set around the 12½-inch surface casing at 260 feet, offsets Cobb's Novick 2, to the south.

Within proved Sundance limits in the eastern sector of the field, Continental Oil Company's Tom Bell 10, CSW NW 34-36n-65w, is cementing 13⅜-inch casing at 261 feet, total depth 290 feet.

Rigging to Deepen

Following the recent success Ohio Oil Company had in deepening producers through the basal Sundance formation to increase production, Argo Oil Corporation is rigging up rotary to deepen Ford 3 SW NW 33-36n-65w, in the northern part of the field. The well completed in March, stopping in formation at 3985 feet, and making a disappointing well with 25 barrels daily production on the pump. The basal sand was topped at 3956 feet.

Ohio Oil Company is rigging rotary to deepen Carrie Putnam 2, NEc SW NW 4-35n-65w, completed several years ago for 20,000,000 cubic feet initial in the Muddy sand at 3430 feet, and Richards & Comstock 2, NE SW 32-36n-65w, completed in 1932 for 140 barrels of black oil daily in the First Sundance sand at 3650 feet.

Noble Drilling Company, which received contract for Carter Oil Company's deep test of the Billy Creek gas field, Johnson County, is moving heavy rotary equipment from Cheyenne where rig was used in drilling Amerada Petroleum Corporation's deep test of the Borie-High structure. The Billy Creek test will be Ryder 3, CNW SE 17-48n-82w, and will drill to the untested Sundance formation and possibly the Pennsylvanian series.

Discovery well at Billy Creek was completed December 8, 1921, a joint venture by Carter Oil Company, Consolidated Royalty Oil Company and Western Exploration Company, for 58,000,000 cubic feet of gas daily. Eleven wells have been completed at Billy Creek, 8 of which are commercial gassers, one showed commercial quantities of black oil, and two were water wells.

Gas production is developed in the Frontier series at 3200 feet. Deepest well in the field drilled to 4782 feet and topped the Morrison formation, but abandoned because of mechanical difficulties. Gas from the field is marketed through a 6-inch pipe line to Sheridan and Buffalo.

In the Salt Creek field, Stanolind Oil & Gas Company is digging cellar for Tensleep 1, CNW SE 26-40n-79w,

a rotary well, which will be drilled as a test toward determining Tensleep limits in the formulation of unit plans for the field. It will be the third Tensleep test in Salt Creek. On November 25, 1930, Midwest Refining Company, completed Tensleep 29, NW NW 35-40n-79w, for 1,949 barrels of black oil initial in the Tensleep sand at 3780-3980 feet. The well plugged back from 5420 feet, top of the granite. It found the Amsden dry, a show of oil in the Madison at 4365 feet and the Deadwood dry. Tensleep 12, CNE NE SW 25-40n-79w, completed March 11, 1926, flowed water in the Tensleep at 4070-4388 feet and plugged and abandoned at 4400 feet.

Principal producing horizon at Salt Creek is the Wall Creek series in the Frontier shales, embracing 20,000 acres with 1275 wells on production. Thirty wells are producing from the Lakota sand embracing 2000 acres, and 32 wells from the Sundance embracing 1500 acres.

In the South Casper Creek field, Natrona County, Empire State Oil Company's Unit 3, SE NE 33-34n-85w, an old well deepened to the Tensleep, complete for 130 barrels of oil daily from the lower horizon. Hole bottoms at 2667 feet.

Four wells were at critical depths in the Laramie Basin fields, south central Wyoming at the close of the week. In the Big Medicine Bow field, Carbon County, the Ohio Oil Company and the California Company's Kyle 2, CSE SE 26-21n-79w, topped the First Sundance sand at 5473 feet and cored 71 feet of excellent saturation before going into shale break. At 5655 feet well topped the Second Sundance and is coring in saturation at 5668 feet.

On the east end of the Allen Lake gas structure, Carbon County, Medicine Bow Oil Company's Hintze-Government 1, CNE SW 18-22n-79w, is under-reaming hole below the 6-inch casing set at 2113 feet preparatory to retesting in the lower Sundance with total depth at 2180 feet. A test early in the week developed 900,000 cubic feet of gas daily from the lower part of the Sundance section. The well on Christmas day tested 25,000,000 cubic feet of gas initial from the Upper Sundance at 2033-58 feet. Hole was deepened to present depth and casing carried and set just below a hard tight section of Sundance encountered at 2096 to 2110 feet, soft oil saturated sand was cored to bottom. The well extended the field 4½ miles to the southeast.

California Company had one well completing, and started another in the Quealy field, Albany County. The company is using the selective method of completing wells. Its Wilson 3, SW NW SW 18-17n-76w, is bottomed at 4010 feet in the Sundance formation with 7-inch production casing cemented on top of the Sundance (depth unreported), and has perforated back to the Dakota where it is testing and will complete. Sand record of the Dakota has not been released. The company plans to complete its Quealy wells in this method, leaving the Sundance sand as a reserve and readily drillable when marketable conditions warrant.

In the Rock River field, Carbon County, Ohio Oil Company's Diamond Cattle Company 6, NW NW 35-20n-78w, an old Dakota producer, is having trouble with bottom-hole water in the Sundance and is plugging back by stages and testing from 3334 feet. It topped the Sundance at 3314 feet.

Park County Wildcat Shows

Prospects for a new black-oil field for Wyoming were considerably brightened this week as General Petroleum Corporation cored in oil saturated sand in the Tensleep formation in its wildcat drilling on Gooseberry Dome, Park County. The test, Government 1, NW

MOUNTAIN STATES Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MONTANA		
GLACIER COUNTY—		
(Cut Bank field)—		
Texas Co., W. F. Stufft 1, lot 4 1-35n-6w	*	2975
Peter Potter, Allotted 2-125, sw sw ne 12-32n-6w	100	2995
WYOMING		
NATRONA COUNTY—		
(South Casper Creek field)		
Empire State Oil Co., Unit 3, se ne 33-34n-85w	130	2668
NOBRARA COUNTY—		
(Lance Creek field)		
Ohio Oil Co., Putnam 6, nw nw 4-35n-65w	2400	4065
Putnam 8, sw se 4-35n-65w	2160	4078

*Failures; †Junked; ¶Million cu. ft. gas

Do You Know?
One mid-continent contractor drilled 337 miles of hole in 1936.
THE QUINTUPLEX CAN'T FORGET
A file of Martin-Decker charts is a permanent record of drilling experience.
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THE WEIGHT INDICATOR
MARTIN-DECKER CORPORATION
LONG BEACH CALIFORNIA
San Joaquin Valley: A. F. McQUISTON, Bakersfield, California
Mid-Continent Distributor: REED ROLLER BIT COMPANY, Houston, Texas

NW NW 33-47n-100w, is coring in saturated Tensleep at 5989 feet. It topped the Tensleep formation at 5899 feet and entered saturation at 5903 feet.

Two wells were completed in the Byron field, while one new well started in the Garland field, Big Horn County, this week. Ohio Oil Company's Byron-Baker 2, SE NW 23-56n-97w, swabbed 500 barrels initial from the Embar-Tensleep zone. Seven-inch casing was set on top of the Embar at 5090 feet; State 1, NEc 35-55n-97w, swabbed 300 barrels initial from the Embar-Tensleep with the Embar at 5331-5402 feet and the Tensleep at 5402-5450 feet.

In the Garland field, Stock Oil Company is rigging rotary for Stock-Jones 1, SEc Lot 52-56n-97w, a well to the Madison lime at 4000 feet.

Contract Two Deep Tests

The Resolute Oil Company this week let contract for two deep wells in the Badger Basin field to Manning & Martin, Inc., of Denver and Tulsa. Location for the first well, Government 1, CNE NE 20-57n-101w, three quarters of a mile south of the discovery, is moving in rotary. The second well will be located following a seismograph survey of the structure and is scheduled for a test below the Frontier sands at 8700 feet and may establish a new Rocky Mountain depth record. The Badger Basin discovery, Northern Pacific 1, NE SW NE 17-57n-101w, completed in 1931 for 250 barrels daily in the Frontier at 8725 feet, establishing at the time a World record for deep drilling with cable tools.

The Texas Company this week announced contract let to Manning & Martin, Inc., for a rotary test of the Wilson Creek structure, Rio Blanco County. This important deep test in northwestern Colorado will be drilling in SE SE 27-3n-94w, and contract calls for a depth of 7000 feet if necessary to reach the Sundance formation.

Three wells completed in the Cut Bank field, Glacier County, and two in the Kevin-Sunburst field, Toole County, northern Montana, this week, where operations have been slow because of unfavorable marketing conditions.

In the Cut Bank field, William Hanlon completed Tribal 2-A112, SE SE 12-32n-6w, in the southern part of the field, for 395 barrels flowing production from 3035 feet. Glacier Production Company completed Connolly 2, CSW SW 6-33n-5w, for 180 barrels initial at 2915 feet.

Indian land sale at Muskogee May 18

Muskogee.—Next sale of restricted allotted Indian lands of the Five Civilized Tribes will be held here May 18, beginning at 10:00 a.m., in the office of A. M. Landman, superintendent. A total of 9,437.01 acres in 20 counties will be cried by the auctioneer. Interesting feature of the sale will be one square acre of land at NEc NW 23-2n-6e, one of three tracts in Pontotoc County to be offered, and the nearest to the prolific Fitts field.

EASTERN FIELDS

28-well program announced for gas lease in Ohio.

* * *

Fayette County, Pennsylvania, to have deep tests.

* * *

Two good wells completed in Oriskany gas field.

Pittsburgh, Pa.—The 10,000,000 cubic foot well of Julia Ellen Leathers in Hartland township, Huron County, Ohio, brought in April 30, commanded Eastern fields' interest last week. It is on a 28,000-acre tract leased by Miss Leathers, A. C. Leathers, her father, J. C. Leathers and W. G. McCorkle. Advantageously located near the Detroit and Cleveland markets, the lessees plan to start 28 more wells within 90 days. A pipe line is to be constructed immediately to connect with lines entering these cities.

C. L. Williams, Cleveland geologist, and George Brandfield, Cleveland, discovered the Huron County field. Williams said the field shows plentiful proof of supply with low-cost drilling and promises long life of 20 to 40 years or more.

A 50-barrel producer was completed in Fallsbury township, Licking County, Ohio, by Blue Rock Oil & Gas Company as No. 3 on the Virgil L. Smith farm. It was bottomed in the Clinton sand at 3120 feet. In the same township, Emerald Petroleum Company et al completed a No. 9 on the J. E. Martin farm in the Berea sand at 815 feet as a 2-barrel pumper. Three other completions were recorded in this county. Wehrle Company drilled No. 1 on its own property through the Clinton sand where it is a light gas well. This operator drilled a test on the Harvey Orr farm through the Clinton sand. It was dry. G. S. Lacknett completed a test on the T. R. Vanallen farm, Section 17, Perry township, in the Berea sand at 666 feet and it is a small gas well gauging 40,000 feet a day.

Four other small producers were completed in Southeast Ohio. In Athens County, Carpenter & Glazier completed John Smith 17, Section 13, Ames township, in the First Cow Run sand at 323 feet where it produced 1 barrel after a shot. In Section 1, Waterloo township, Gross & McCune completed a test on the Floyd Dixon farm near Fisher in the Berea sand at 1160 feet where it produced 4 barrels after a shot. A 10-barrel producer was brought in by E. R. Edson Son Company, Koons 5, Chatham township, Medina County, bottomed at 550 feet. O. K. Parrott completed Goddard 2 near Bartlett, in Section 29, Wesley township, in the Mahoning lime at 610 feet. It produced 1 barrel the first day after a shot.

Plan Deep Drilling

Eastern operators are planning considerable exploration of the deep sands on the major structures in the lower eastern fields. Seismograph studies have been made on various anticline, the latest being Chestnut Ridge on which the wildcat of William Snee and others was drilled into the Corniferous lime on the Summit Hotel lease. Located in South Union township, Fayette County, Pennsylvania, this test was bottomed at 6667½ feet. It is a gas well with a volume of 1,800,000 feet a day.

Deep tests are drilling in Beaver, Butler, Lawrence and Washington counties in Pennsylvania and in Hancock, Kanawha, Calhoun, Jackson and Wirt counties in West Virginia.

In Beaver County, the test of John T. Galey and others on the Minnie Weigle heirs farm, plotted as Jean T. Duff, is drilling at 3380 feet. A. J. Wise, Jr., and others on the Beaver Falls Airport Corporation lease are drilling below 4480 feet. The Tully lime has been reached. Both tests are in South Beaver township. American Natural Gas Company and T. W. Phillips Gas & Oil Company were unable to shoot the Oriskany sand in their test on the Perry S. Davis farm, one mile south of Prospect, in Franklin township, Butler County. The casing collapsed and has been reset, and the hole is now being bailed. Carnegie Natural Gas Company is building a rig for a deep test on the W. A. Currie farm in Shenango township, Lawrence County, while Norwood Johnston and others are still fishing for tools on the James McBurney farm, in Mount Pleasant township, Washington County, completing Pennsylvania active deep tests.

In West Virginia, Hancock County, John T. Galey reached the top of the Corniferous lime in the test on the Rachel Talbott farm, in Grant district, at 4752 feet. Drilling is now in this formation, which may be 230 feet thick, and the hole has not been cased. In Calhoun County, Godfrey L. Cabot is drilling below 6105 feet on the Allen Hartman farm, in Center district. The tools

are 110 feet in the Corniferous lime and the pipe has been set 22 feet in the lime. Carnegie Natural Gas Company is drilling a deep test on the W. C. Patterson farm on the Burning Springs Anticline in Burning Springs district, Wirt County, which is scheduled for the Oriskany sand. Despite a showing of 10 to 15 barrels of oil a day at 2022 feet in what is believed to be the Gordon sand, the well is being deepened. In this same district, Godfrey L. Cabot, Inc., is cleaning out cement at 5370 feet in the test on the Walter Hoffman farm. There will be some more drilling before Corniferous is reached. United Carbon Company is cleaning out preparatory to drilling Osborne 13 in Big Sandy district, Kanawha County, down to the Oriskany sand.

Largest Eastern fields' producer of the week was completed by the South Penn Oil Company on the Samuel Harvey farm, in Center township, Greene County, Pennsylvania. It yielded 125 barrels the first day and 105 barrels the second, and reached the top of the Thirty-Foot sand at 3206 feet.

Deepening Successful

Two successful deepening operations were carried out in Washington County: Manufacturers Light & Heat Company deepened Vankirk 2, a former gas well, to the Fifth sand which was topped at 3035 feet. Oil was at 3038-41 feet, 25 barrelsa day, and operators are undecided whether to drill deeper. Carnegie Natural Gas Company obtained a gas well gauging over 1,250,000 cubic feet a day when it deepened N. B. Redd 2. The Thirty-Foot sand was at 3872 feet with gas at 2898-2902 feet. Both wells are located in Amwell township.

Carnegie Natural Gas Company completed a second test on the George M. Elliott farm, in Jefferson township, Fayette County, bottomed at 2192 feet. It is gauging 413,000 cubic feet a day from the Maxton and Murraysville sands. In Greene County, Equitable Gas Company deepened the well on the James H. Cole farm in Wayne township to 3329 feet where it gauges 125,000 feet a day with rock pressure of 425 pounds. The Bayard sand was at 3267-3284 feet with gas at 3267-73 feet and again at 3277-79 feet.

The Oriskany deep sand gas field of Kanawha County, West Virginia, saw two good gas wells and one failure completed during the week, all by Columbian Carbon Company. The test on the Minia F. Stauffer farm, in Elk district, was bottomed at 5067 feet. The top of the Oriskany was at 4998 feet and the gauge at the end of 12 hours was 2,816,000 feet a day. In the same district, the test on the James R. Jones farm was deepened to 5037½ feet where the gauge increased to 7,500,000 feet a day with a shut-in pressure of 1675 pounds. Also in Elk district, the test on the J. C. Jordon farm, north of the small gas well on the Baxter farm and south of the drilling test on the B. R. Reed farm, found the Oriskany sand dry. It was topped at 4931 feet and the test drilled to 4987 feet.

The test of the United Fuel Gas Company on the Mollie Shaffer and others lease, in Elk district, Kanawha County, is showing for 4,500,000 feet a day while still drilling. Corniferous lime was topped at 4911 feet and the tools are in the sand and drilling at 5050 feet. Other Oriskany field operations: The Columbian Carbon Company topped Corniferous lime in the test on the B. R. Reed farm, Poca district, at 4890 feet and is drilling below 4960 feet; Guy B. Ray is drilling at 1275 feet on the Elmer Thaxton and others lease; Godfrey L. Cabot, Inc., is down 1290 feet on the J. E. and M. D. Good farm; West Virginia Gas Company is down 4660 feet on the Victoria L. Burdette farm and Hays Oil & Gas Company has reached 4678 feet on the E. C. Humphreys test, all in Poca district. In Union district, Glen Oil & Gas Company is drilling below 1480 feet on the Virginia Joint Stock Land Bank lease, while Godfrey L. Cabot, Inc., is building a rig on the Sarah Ann Null farm.

West Virginia Well Makes 50 Barrels

Sand Creek Gas Company completed the largest of the week's six West Virginia producers on the Phillip Hager farm, in Harts Creek district, Lincoln County, in the Big lime, bottomed at 1200 feet. It is showing for 50 barrels a day of dark oil resembling Lima or Somerset grade. Stanley 5, in Reedy district, Roane County, was completed by South Penn Oil Company as a 10-barrel producer, bottomed at 2587 feet. Two producers were completed in Ritchie County: King Knob Oil Company's test on the F. W. Hill farm in Murphy district, bottomed at 2370 feet, was drilled through the Squaw sand and it is showing for 2 barrels a day from the Injun sand with 25,000 feet of gas. W. R. Pierson's test on the A. S. Simmons farm, in Grant district, was bottomed at 2020 feet, the Squaw sand, and is a half barrel well. In Tyler County, J. Fonner et al completed a test on the M. L. Bogard heirs farm, in Union district, in the Injun sand, bottomed at 1670 feet, and it is showing for 2 barrels a day. Oil City Trust Company completed Roberts, Pell and Newmay 6, in Spring Creek district, Wirt County, and it is good for 6 barrels a day from 851 feet.

A new location of New York State Natural Gas Company on the Leland Schofield farm, Harrison township, Potter County, Pennsylvania, was the only new development of the week in the New York-Pennsylvania deep sand gas field.

Potter Development Company's test on the J. Chapin farm, Rockdale township, Crawford County, is drilling in the Red Medina, scheduled for the White Medina. It topped the Red Medina at 4118 feet and was drilling 10 feet in this formation as the week closed, having failed to find the Oriskany. This operator is carrying on the three current operations in Potter County—fishing at 5145 feet on the Crawford estate property, Keating township, drilling at 285 feet on the May C. Haupt farm, West Branch township, and building rig on the Ida Scoville farm, Harrison township.

Potter Development Company is fishing at 3687 feet on the H. C. Kemp farm, Farmington township, Tioga County, while G. L. Cabot, Inc., is drilling at 2880 feet on the Union Joint Stock Land Bank tract, Brookfield township, and New York State Natural Gas Company at 520 feet on the L. J. Roberts farm, Clymer township. In Warren County, Kent Kane et al are building rig for a test on government surface lot No. 515, Watson township, and Updegraff is planning to start operations on the C. E. Erickson farm, Elk townhip. McKenry et al continue shut down on their wildcat test on the Stellman farm, Rockland township, Venango County. Potter Development Company is drilling below 1050 feet on the N. D. Dahl farm, Hayfield township, Crawford County.

On the New York side of the field, Kaufman et al are drilling below 3850 feet on the Bank Angelica property, and Empire Gas & Fuel Company is shut down on the K. Mulvey property at 4649 feet. Both tests are in Alma township, Allegany County. In Cattaraugus County, Belmont Quadrangel Drilling Corporation is drilling below 2610 feet on the A. G. Hoffler farm, Leon township, and Cunningham Natural Gas Company is shut down at 3650 feet on the H. Hotchkiss farm, Randolph township.

EASTERN FIELDS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
WEST VIRGINIA		
BOONE COUNTY—		
Owens Illinois Glass Co., Little 17.	¶¼	2427
CABEL COUNTY—		
R. H. Adkins, Dunn 1	¶1/5	3347
W. C. Kingery et al, Midkiff 2	¶	1883
HARRISON COUNTY—		
Lumberport & Shinnston Gas Co. Lancaster 1	¶1/5	2990
B. F. Bowman, Highland 2	¶	2680
KANAWHA COUNTY—		
Columbian Carbon Co., Stauffer 1.	¶*	5067
Jordan	*	4987
Jones 1	¶7½	5037½
Owens Illinois Glass Co., Siler 2	¶4/5	4013
LINCOLN COUNTY—		
Sand Creek Gas Co., Hager 1	50	1200
United F G Co., No. 2381	¶	3371
MARSHALL COUNTY—		
Valley Run O & G Co., Yoho 1	¶	2175
MINGO COUNTY—		
T. H. Harvey, Fee 2	¶2½	2777
MONONGALIA COUNTY—		
Convex Glass Co., Raber 2	¶	1835
PUTNAM COUNTY—		
Veleair C. Smith et al, Gibson 1	¶	1032
RITCHIE COUNTY—		
King Knob Oil Co., Hill 1	2	2370
W. R. Pierson, Simmons 1	½	2020
ROANE COUNTY—		
South Penn Oil Co., Stanley 5	10	2587
L. C. Young et al, Kee 1	¶1¾	1739
Hawkins 2	¶	1688
TYLER COUNTY—		
J. Fonner et al, Bogard 1	2	1670
Hope Nat Gas Co., Booker 7740	¶¼	2809
Ohio O & G Co., Darbell 1	*	1911
A. R. Leatherman, Hamilton 1	*	1400
WAYNE COUNTY—		
Owens Illinois Glass Co., Copley 1.	¶	2780
WIRT COUNTY—		
Oil City Trust Co., Roberts, Pell & Newman 6	6	851
PENNSYLVANIA		
FAYETTE COUNTY—		
Carnegie Nat Gas Co., George M. Elliott 2	¶½	2192
GREENE COUNTY—		
South Penn Oil Co., Harvey 1	125	3206
Equitable Gas Co., Cole 1	¶	3329
WASHINGTON COUNTY—		
Manufacturers L&H Co., Vankirk 2	25	3041
Carnegie Nat Gas Co., Redd 2	¶1¼	2902
OHIO		
ATHENS COUNTY—		
Gross & McCume, Dixon 1	4	1160
Carpenter & Glazier, Smith 17	1	323
HURON COUNTY—		
J. E. Leathers, Leathers 2	¶10	....
LICKING COUNTY—		
Blue Rock O & G Co., Smith 3	50	3120
Emerald Pet Co., Martin 9	2	815
Wehrle Co., Wehrle 1	¶	....
Orr 1	*	....
G. S. Lacknett, T. R. Vanallen 1	¶	666
MEDINA COUNTY—		
E. R. Edson Son Co., Koons 5	10	550
WASHINGTON COUNTY—		
O. K. Parrott, Goddard 2	1	610

*Failures; †Junked; ¶Million cu. ft. gas.

NORTH LOUISIANA

Lisbon has 10 oil wells and is a busy spot.

* * *

Rodessa deeper search is gaining momentum.

* * *

Second Sugar Creek Travis Peak well produces.

Shreveport. — Four producers were completed last week in the new Lisbon field, Claiborne Parish, to bring the total there to 10 oil wells, 2 others were producing and waiting on accurate gauge, and 14 locations were made last week. Sixteen other tests were either drilling or waiting on cement, with 10 other rigs and derricks.

All of last week's new producers were inside wells. The best of the four was a conecting link among three other producers, all ¼ mile away. This is Gulf Oil Corporation's Eva Bennett 1, SW SW 31-21n-4w, on the southeast side. After failing to flow following swabbing at 5348 feet, it was treated with acid and in the first 12 hours flowed 500 barrels of oil through ¼-inch choke.

Lyons & Neely's Maggie Patton 1, NW SW 31-21n-4w, completed at 5272 feet, flowed 23 barrels per hour through 1-inch tubing choke; Gulf Oil Corporation's H. E. Patton 1, NW SE 36-21n-5w, at 5324 feet, on 20-hour gauge showed 296 barrels of oil through ½-inch tubing choke; and T. L. James & Company's H. W. Patton 2, NE SE 36-21n-5w, after acidizing at 5344 feet, flowed 81 barrels of oil the first hour and then settled down to 25 barrels per hour.

Red Iron Drilling Company and Scout Oil Company's H. E. Patton 2, SW NE 36-21n-5w, was heading at the rate of 15 barrels per hour from 5299 feet. It had been intermittent in production. Love Petroleum Company's Patton 3, Section 36-21n-5w, was swabbing with much oil showing at 5335 feet.

Atlantic Makes Location

Of the 14 new locations made last week most interesting was Atlantic Oil Producing Company's F. B. King 1, SE SW SE 35-21n-5w, ¼ mile west of production, which marks the active reentry into operations in North Louisiana of this company after cessation of several years. One-half mile south of nearest production, J. D. Carruthers and associates made location for Aycock 1, SW SW 6-20n-4w. Magnolia Petroleum Company made locations for S. M. English 1 and 2, west W½ NW 31-21n-4w; Lyons & Neely made locations for Maggie Patton A-2 and A-3, SE SW 31-21n-4w; and Hollyfield & McFarlane for 4 tests in W½ SE 31-21n-4w.

C. R. Schuster and Associates of California have acquired the controlling interest in the 160 acres comprising NE Section 1-20n-5w, on which E. T. Oakes, H. D. Easton and associates drilled the discovery well of the field, and announced four new locations in that tract, all on H. W. Patton Estate land. Schuster and associates also acquired the discovery well of Oakes & Easton and plan to treat it with acid, in an effort to increase its flow which in the last few weeks had declined to 100 barrels daily after having averaged 150 barrels since its completion last December.

Try Rodessa Deep

Shreveport.—Exploration for deeper producing possibilities continues to gain momentum in the Rodessa field and developments last week spurred interest in this deeper search.

Most interesting of the deeper tests' behavior last week was that of Arkansas-Louisiana Gas Company's Laura McIntosh 1, William Edmonson Survey, Marion County, Texas, 2½ miles southwest of the field proper. This test was drilling at 6690 feet, after a slight oil and gas showing in two cores at 6644 to 6654 and 6654 to 6665 feet in what was identified as basal Glen Rose, corresponding to the Petitt of Sligo and Lisbon fields. This well failed to produce in the regular Rodessa horizons.

One mile northwest of Dunn & Fisher's recently completed gas-distillate well at Susie A. Chatten 1, The Hunter Company's E. W. Fonda 1, Santos Coy Survey, was preparing to core at 6067 feet, after cutting cores from 6029 to 6049 and from 6049 to 6067 feet. In an 18-foot core recovered from 5990 to 6009 feet the test had a 3-foot section showing some gas and an oil stain but when another 20-foot core was cut tight lime showed with no porosity. The showing in this test was in the Hill horizon, uppermost of the producing horizons at Rodessa. With elevation of 309 feet, this test logged top of anhydrite at 5333 feet, practically the same sub-sea depth as Holcomb, Thomasson and associates' Lizzie Henderson 1, R. Bennington Survey, 14-mile southwest outpost producer near Jefferson.

United Gas Public Service Company's I. L. Young 5, Section 27-23n-16w, Caddo Parish, deep test was reaming to bottom at 6790 feet and in Cass County its J. W. Land 1, Robert Potter Survey, was coring at 7076 feet.

Although considerable oil appeared with five joints of salt water that appeared in a 20-minute drill stem test from 6548 to 6565 feet, in basal Glen Rose in Magnolia Petroleum Company's George Estate 1, John Collom Survey, Cass County, northwest edge test, it was decided to abandon at this depth.

Second Sugar Creek Oil Well

Shreveport.—The second oil producer from the Travis Peak horizon on the west flank of the Sugar Creek gas field, Claiborne Parish, appeared assured last week when United Gas Public Service Company, Standard Oil Company of Louisiana, and Triangle Drilling Company, joint owners of all acreage in that area, completed Dobbins 1, Section 12-19n-6w, at 5776 feet, flowing 25 barrels of oil per hour and making 25 to 40 million cubic feet of gas daily after being treated with 3000 gallons of acid. Five and three-sixteenths inch casing had been cemented at 5660 feet. It was an old gas-distillate producer deepened from the 4500-foot horizon. After flowing for eight hours it was shut in for tanks.

This well is one mile southeast of the recently completed Warren Brown 1, SE NE 1-19n-5w, an oil producer, completed from the Travis Peak.

The importance of these two oil producers has stimulated interest in possibilities of other gas areas from the Glen Rose having oil producing possibilities on their flanks.

Lide, Greer and Associates' W. J. Smelley 1, SE NW SW 18-16n-4w, showed 20 million cubic feet of gas daily when formation tester was run at 6068 to 6088 feet in a horizon of the Glen Rose not tested in their two former tests that were completed as gas-distillate wells. The test is coring ahead in oolitic lime at 6180 feet.

Per well production in Rodessa 144 barrels daily.

Shreveport. — The per well production average for the Rodessa field last week was 144 barrels, representing an average of 135 barrels per well for the Louisiana side and 156 barrels for the Texas side.

Daily average pipe line runs for the field were 93,815 barrels, divided among the following companies, as follows: Arkansas, 1335; Gulf, 15,129; La-Tex, 1750; Magnolia, 26,868; Standard, 19,608; Texas, 6337; and United, 22,788.

Rodessa Has 626 Wells

Total daily average distribution for the field was 94,565 barrels; daily average production was 89,845 barrels and runs from storage, 4720 barrels. Daily average production was divided be-

tween Louisiana and Texas as follows: Louisiana, 48,965 barrels, and Texas, 40,880 barrels. Two wells completed on the Louisiana side brought the total on that side of the field to 364, and five on the Texas side brought the total in that state to 262, a total for the field of 626 wells.

With the daily average runs from the Lisbon field mounting 1070 barrels to 1500 barrels, resulting from Gulf Pipeline Company completing the first line to the field, daily average production in North Louisiana last week rose to 73,352 barrels.

Daily average production in North Louisiana by districts, besides Lisbon and Rodessa, follows (in barrels): Caddo, light, 4124; Caddo, heavy, 2347; Red River-DeSoto, 1487; Elm Grove and Sligo, 1025; Homer, 2392; Haynesville, 3116; Cartersville, 364; Cotton Valley, 1825; Urania, 2817; Pleasant Hill, 100; Zwolle-Converse, 1361; Holly, 140; Bellevue, 782.

Arkansas Running 27,065 Barrels

Arkansas average last week was 27,065 barrels. Daily average runs by districts last week in Arkansas follow (in barrels): El Dorado, 1570; Calion, heavy, 1568; Calion, light, 1763; Smackover, light, 2252; Smackover, heavy, 16,594; Lisbon, 275; Nevada County, 1990; Stephens, 553; Miller County, 485; and Camden, 15.

Plan test south of Angelina-Caldwell flexure

Shreveport.—A 4000-foot test for "the trend" just south of the Angelina-Caldwell flexure was projected last week when Fair and Thompson of New Orleans started moving in materials for Gay 1, in irregular Section 46-6n-3w, Grant Parish, in the old Maes Spanish Grant Number 2202, for a proposed 4000-foot test. These operators have about 3000 acres, having acquired part of their block from McConnell Oil Company and H. M. Smith Corporation. The latter recently spudded a proposed 6000-foot test in Section 21-6n-3w.

The Bisteneau area, Bienville Parish, where DeSoto Oil & Gas Company recently made location for Ashley 1, Section 15-16n-10w, near where a Glen Rose gas-distillate well was recently completed, has attracted considerable leasing recently, particularly by Shell Petroleum Corporation, Magnolia Petroleum Company and Arkansas-Louisiana Gas Company.

Leasing Active

In the north end of Bossier Parish, Standard Oil Company recently leased 2000 acres in Township 23 north, Range 12 west. In central Louisiana in Concordia Parish, John Dale, Vidalia attorney, has assembled 20,000 acres around Section 33-9n-9e, for a proposed 4500-foot test. The Texas Company recently went over this area with a geophysical party. It owns a large block in this parish.

Arkansas-Louisiana Gas Company, which recently completed a series of nine core hole tests on a large block owned by Sherrouse and Snyder in Townships 12 and 13 north, Ranges 7, 8 and 9 east, is reported adding to its holdings in this area. Continental Oil Company is negotiating with the Singer Manufacturing Company for geophysical exploration options on large tracts the latter company owns in Franklin, Madison and Tensas parishes.

H. D. Eason of Shreveport, who continues to add to a block around Section

NORTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BOSSIER PARISH (Sligo)—		
Haynes Drlg. Co., A. J. Murff 1, 36-17n-12w	*	6112
CADDO PARISH (Rodessa)—		
J. Edward Jones, Madie Sharpe A-4, 4-23n-16w	79	6045
R. W. Norton, Hardin 2, 20-23n-16w	485	5946
Standard Oil Co. of La., Sarah Kaempfer 1, 9-23n-16w	696	6001
Standard Oil Co. of La., L. J. Kaempfer 1, 9-23n-16w	332	6024
CADDO PARISH (Pine Island)—		
Stanolind O&G Co., J. B. Slattery 11, 27-21n-15w	20	1580
CALDWELL PARISH—		
Critchett & Woods, Southern Kraft Co. 2, 18-11n-2e	*	1710
DE SOTO PARISH—		
Grogan Oil Co. et al, Ramsey 1, 36-11n-11w (second completion)	†	3027
LA SALLE PARISH (Urania)—		
Air Lift Oil Co., Urania Lbr. Co. 12, 18-10n-2e	60	1508
T. & J., Inc., Urania Lbr. Co. 1, 19-10n-2e	*	1598
Urania O&G Co., Urania Lbr. Co. 1, 7-10n-2e	*	1555
SABINE PARISH (Converse)—		
W. G. Ray Drlg. Co., Looney 3, 30-9n-13w	*	2111

*Failures; †Junked; ¶Million cu. ft. gas.

Use this automatic J-M Packing for greater efficiency . . . for lasting protection against costly shutdowns

NO ORDINARY PACKINGS—these Johns-Manville Sea Rings! They not only last longer—but also, they reduce wear on rods—minimize your power requirements.

For Sea Rings are *absolutely automatic!* The flexible lip is held tightly to the rod on the work stroke by the pressure of the liquid, but releases on the return. Result—unnecessary friction is eliminated. And that means less wear on equipment . . . greater savings in power costs.

Then, too, the extra service provided by this long-lasting packing obviates frequent replacements and consequent shutdowns. In every respect, therefore, they are the best packing for reciprocating rods and plungers used in service against oil, steam, hot and cold water, air or brine.

* * *

For full details on Sea Rings, and on the complete J-M line as well, write for our Packings Catalog. Address Johns-Manville, 22 East 40th Street, New York City.

Johns-Manville PACKINGS & GASKETS

21-19n-4w, Lincoln Parish, for a 6000-foot test that must start by June 10, is representing the Belmont Quadrangle Drilling Corporation of Bradford, Pennsylvania, gas operators in the Finger Lake district of New York. More than 10,000 acres has been assembled in this block and leasing continues. Eason will be associated in the operation. No spreads will be sold, it is reported. Each lease as taken is being abstracted.

In Lincoln Parish, Shell Petroleum Corporation has been taking some leases around Section 26-19n-3w, and Arkansas-Louisiana Gas Company also is adding to its block in that area.

Henry E. Rondeau and associates have re-assembled an 8000-acre block around Section 10-20n-7e, Morehouse Parish, where they drilled last year to 3760 feet, and plan to deepen the test, Clark 1, to 6000 feet.

Magnolia Petroleum Company is reported to have bought a 1000-acre spread in Lyons and Neely's 8000-acre block around Section 8-21n-1w, Union Parish, where the latter operators are contemplating a 6000-foot test.

N. V. Duncan, who has drilled wildcats in East Carroll and DeSoto parishes, has taken a block around Section 9-23n-9w, Webster Parish, formerly held by Red Hawk Oil Company, leasing only the rights to 3250 feet. He is moving in materials for Mayeld 1, SE NW 9-23n-9w. Red Hawk lost a test in this section at 2800 feet several months ago as a junked hole.

In Township 23 north, Range 11 west, between the Sarepta and Cartersville fields, F. F. Meadows has leased over 2000 acres. On the east flank of the Cotton Valley field. Magnolia Petroleum Company, L. H. Harper and J. L. Ham recently leased tracts in Township 21 north, Range 9 west. Frank Whited leased the SW NW 8-21n-10w. In the Shongaloo district, Stanolind Oil & Gas Company leased 200 acres in 28-23n-10w and Arkansas Fuel Oil Company took 80 acres in 24-22n-9w.

ARKANSAS FIELDS

E. H. Moore starts first of series of wildcats.

El Dorado.—E. H. Moore, Incorporated, last week made location for Porterfield 1, NE SE 21-14-25, one of a series of wildcat tests this company is planning in south Arkansas border counties.

In La Fayette County, this same company owns an interest in a block of 6000 acres owned by Earls and Munn, centering around Section 15-15-24.

In Columbia County, John F. Magale is assembling a block around Section 10-17-21, and in the same county Phillips Petroleum Company has leased over 1000 acres around Section 13-18-22. In the same township and range The Texas Company has been taking some scattered leases. J. E. Childs is leasing in Ouachita County, around Township 15, Range 18.

In Union County near Strong, Phillips Petroleum Company has a shooting crew and Root Petroleum Company has a shooting unit working in Townships 18 and 19, Ranges 14 and 15. Arkansas Fuel Oil Company has been doing detail work around the block of Detrick and associates, which centers in Section 12-19-16. Mid-Continent Petroleum Company recently leased 100 acres in Section 4-19-16.

6 Arkansas Permits

El Dorado.—Six drilling permits were authorized last week by the Arkansas Board of Conservation as follows: Clark County — Carter and Burdick, Ozan Lumber Company 1, NE NE NW 25-9-19; Franklin County—Ozark Natural Gas Company, G. A. Southerland 1, center east half NE 13-8n-29w; H. R. Crowe 1, center SE NE 33-10n-26w; Nevada County—Clyde H. Cox, William Haynie 1, NW SE NE 5-14-20; Union County—Alice Sidney Oil Company, D. S. & J. C. Morgan 1, NW NE SE 18-18-17; W. D. Wingfield, Trustee, Southern Kraft Corporation, 1330 feet north and east SWc SW NE 18-16-14.

28 Louisiana Permits

Shreveport. — Twenty-eight drilling permits were authorized last week by the minerals division, Louisiana Conservation Commission. Fifteen were for North Louisiana, divided among the following parishes: Bossier, one, in Sligo; Caddo, three, including one in Rodessa; Claiborne, seven, all in Lisbon; La Salle, one; Red River, one; Sabine, one; and Union, one. Thirteen in South Louisiana were divided among the following parishes: Acadia, one; Ascension, one; Calcasieu, one; Cameron, one; Iberia, five; Jefferson Davis, one; La Fourche, two; and Plaquemines, one.

Selling 1500 Gallons Daily

Shreveport.—Rodessa Gasoline Company's recently re-opened plant in the northeast end of the Rodessa field is selling 1500 gallons of its product daily to Shoreline Oil Company at Lewis, Caddo Parish.

East Texas Refining Company has halted sale of casing-head gasoline to Magnolia Pipe Line Company and will use its product to blend with gasoline produced from distillate, it is reported. East Texas Refining Company is reported contemplating utilization of isobutane from gas at its casinghead plant.

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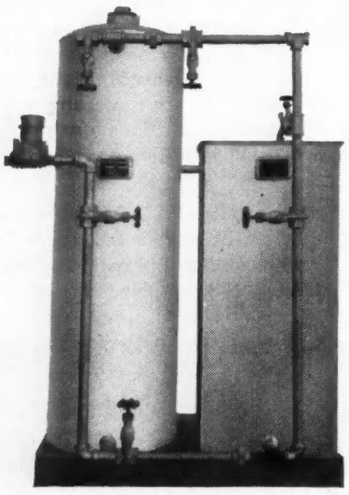

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SOUTHEASTERN STATES

Sun moving rig for test 1500 feet from failure.

Jackson.—Sun Oil Company and associates were moving rig 1500 feet south of Mrs. Kate Talley 2, NW NE NW 33-4n-15w, Lamar County, Mississippi, after abandoning this hole at 3027 feet, the third hole on this salt dome prospect. Joe Modisett of El Dorado and Shreveport is the contractor.

The last hole had two drill stem tests made, one from 2725 to 2990 feet showing 190 feet of mud, and the other to 3005 feet showing 1400 feet of sulphur water. With elevation of 402 feet the last test topped anhydrite at 2975 feet, which was 1235 feet lower on this marker than Scanland and Semmes 1, Section 28-4n-15w.

State of Mississippi's Fee 3, Section 25-6n-1e, Hinds County, Jackson gas field, which has been producing gas from the Wilcox at 1107 feet has ceased to produce and will be deepened to the Midway chalk gas horizon at 2400 feet. State of Mississippi's Fee 2, in the same

section, plugged back from 5529 feet, and is making an estimated 10 to 15 million feet of gas and some fresh water with a pressure of 915 pounds from the Midway producing zone, just below 2400 feet.

Snow-Black Petroleum Company's Cranford 1, south half NW 29-7n-12w, tested two fourbles of drilling fluid in a drill stem test at 3480 feet recently and is coring ahead below 4000 feet.

Oil Development of Florida's Gulf Exploration Company 2, SE SE 17-24s-25e, in Lake County, Florida, which was drilled to 6124 feet, has been plugged back to 2970 feet and 6⅝-inch casing is being run.

Two 6000-Foot Tests Planned

Jackson.—E. R. Owen, drilling contractor of Jackson, has signed contract with Phillips Petroleum Company to drill two 6000-foot wildcat tests in the Mississippi delta, one in Bolivar County, on a 20,000-acre block, and the other in Sunflower County, on a 35,000-acre block. These blocks were assembled after extensive geophysical work by Phillips crews, which have worked extensively also in south Arkansas. Locations were to be determined at Phillips headquarters at Bartlesville, Oklahoma.

Gulf Oil Corporation which has been active for some time has begun leasing in Townships 7 and 8 north, Ranges 13 and 14 west, Jones County, Mississippi.

35-Well Program Announced

Warren, Pennsylvania.—A 35-well drilling program for the next five months on the Robert E. Leyendecker 1200-acre leasehold in Elred and Spring Creek townships, Warren County, Pennsylvania, was announced here last week.

The seven-spot method will be used, with 30 producing wells and five pressure wells being planned. Test wells showed a good oil content in the producing formations in this area, found at 300 to 350 feet.

MICHIGAN

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ALLEGAN COUNTY—		
Muskegon Dev. Co.'s Holtof & Sawyer 1, ne nw se, sec 17-4n-13w	90	1586
ARENAC COUNTY—		
Weber Oil's Whiting 2, se se ne, sec 10-20n-4e	166	2610
GLADWIN COUNTY—		
Rex Oil's Jacob 1, sw ne sw, sec 11-18n-1w	1680	3635
Jacob 2, nw ne sw, sec 11-18n-1w	1700	3634
Buckwin's State 3, nw nw se, sec 11-18n-1w	3480	3625
Wicklund Dev. Co.'s State B-1, sw sw ne, sec 11-18n-1w	720	3630
State C-1, sw sw nw, sec 12-18n-1w	1100	3625
IONIA COUNTY—		
Boston Oil & Gas Co.'s Marshall 1, nw ne sw, sec 16-6n-3w	*	2710
ISABELLA COUNTY—		
Chartiers Oil Co.'s Currie 2, c s½ se sw, sec 5-16n-4w	*	4042
LAPEER COUNTY—		
Co-Op Oil Co.'s Conklin 2, ne sw sw, sec 4-8n-9e	*	2291
MECOSTA COUNTY—		
Wiser Oil's Howse 3, c sw nw, sec 31-13n-7w	¶17½	1306

*Failures; †Junked; ¶Million cu. ft. gas.

CALIFORNIA FIELDS

Four important wildcat operations are abandoned.

* * *

Cantua Creek exploratory test yields Temblor oil.

* * *

Wilmington development continues at rapid pace.

Los Angeles.—During the past week four important wildcat operations in California have been abandoned.

In the Greeley area, of Kern County, Standard Oil Company of California's K. C. L. 14-1, extension test well located in Section 4-20-26, was abandoned at 8318 feet. The location of this hole, three miles southeast of the discovery well, was off the structure, with the last cores showing only gray sand. In addition, prospects of a commercial producer from Standard's K. C. L. 11-2 are proving very doubtful. This well located in Section 20-29-26, was drilled to 8339 feet and then plugged back to 7768 feet for a formation test that yielded only gaseous mud and water. It has been plugged back again to 7754 feet in anticipation of another test.

In the Gosford area of Kern County, Signal Oil & Gas Company's wildcat project, K. C. L. No. 1-A, Section 21-30-27, has proven a duster. This hole was abandoned at 8505 feet in gray sand. Cores taken from 7236 feet to the bottom of the hole were practically all gray sand.

Another dry one for Kern County was in the McGunden area. The joint test of Superior Oil Company and A. T. Jergins Trust's Crome Community No. 1 in Section 36-29-28, was cored to 5234 feet and abandoned for lack of favorable showings.

San Joaquin County's contribution to dry wildcats was Coast Exploration Company's T. F. I. No. 1, gas test located in Section 2-3-4. This test in the Rio Vista area was cored to 3496 feet and abandoned at that depth.

Wildcat Produces From Temblor

In the Cantua Creek area of Fresno County, Western Gulf Oil Company's S. P. L. 3 in Section 3-17-15, drilled to a depth of 8531 feet and cemented 7-inch casing at 8450 feet. A production test in the lower portion of the hole was a failure. The 7-inch casing was then perforated opposite the Temblor sand at 6450 feet to 6480 feet, where previously encouraging showings had been encountered, and the well put on a swabbing test. The last 24 hours production gauged 411 barrels of 35.2 gravity oil and 338 barrels of water. During the previous 24 hour test the production figures showed 411 barrels of water and 330 barrels of oil, indicating that possibilities of clean oil production are not remote. Results would apparently warrant the crediting of the Western Gulf Oil Company with a new discovery.

Expect More Activity

The Adam production area of Santa Barabara County was extended by the successful completion of Union Oil Company's O'Donnell 1 in Section 21-10-34, two miles west of the Adam field. The hole was completed at 4157 feet, with the 8⅝-inch casing cemented at 3815 feet. In 13 hours it pumped 251 barrels of 17.8 gravity oil cutting 3.2 percent. Considerable drilling activity may be expected. The foundation is in for Union Oil Company's Russell No. 1, which is located approximately one half mile south of the discovery well. Cohn & Mitchell have a rig up for Giacomini 1 in Section 18-10-34, which is approximately two miles to the west of the O'Donnell 1.

In the Newhall area, Barnsdall Oil Company's Rancho San Francisco No. 1, the discovery well in Section 26-4-17, depth 6472, has been taken off production and additional work is now being done on the well. The last production was given as 148 barrels per day of 34.0 gravity oil, flowing open. It is understood that the second location has been staked.

Another Test For Wasco

In the Wasco area of Kern County, Continental Oil Company's K. C. L. A-1, Section 8-27-24, was put on the compressor April 26. The initial production was 45 barrels daily of 28.4 gravity oil. Production rate has declined to 25 barrels per day and is said to still be falling away. In view of the mechanical conditions involved in this hole, the showing is considered as favorable, and the drilling of the second well will be watched with interest.

Development continues at a rapid pace in the Wilmington field and it is now felt that the peak of the drilling activity has been passed. During the past week 14 new Wilmington wells were completed for a daily production of 13,310 barrels, an average of 950

barrels per well. Total daily production is about 32,900 barrels from 53 wells. There are now 35 active drilling wells, and 31 projects are rigs or rigging up. Ten new locations were made last week.

An interesting completion has been made in the eastern part of Wilmington by the Union Pacific Railroad's offset No. 10, east of the Ford lease. Wells in this area are usually completed in the third or "Terminal" zone, but the Union Pacific Railroad's well was brought in in the intermediate zone at 3044 feet, flowing 2000 barrels of 23.5 gravity oil. It is understood that this well will not be produced from this zone as the production test was made only for future reference.

Only governor's signature is needed for offshore drilling.

Los Angeles.—The California legislature having approved the Olson bill providing for drilling wells offshore at Huntington Beach, only the governor's signature is lacking. The bill was finally passed by better than a two thirds majority, making it effective immediately after the governor signs.

The bill provides for leasing the water front proven area by parcels to highest bidder, and if there is no satisfactory bidder, the state can drill the wells.

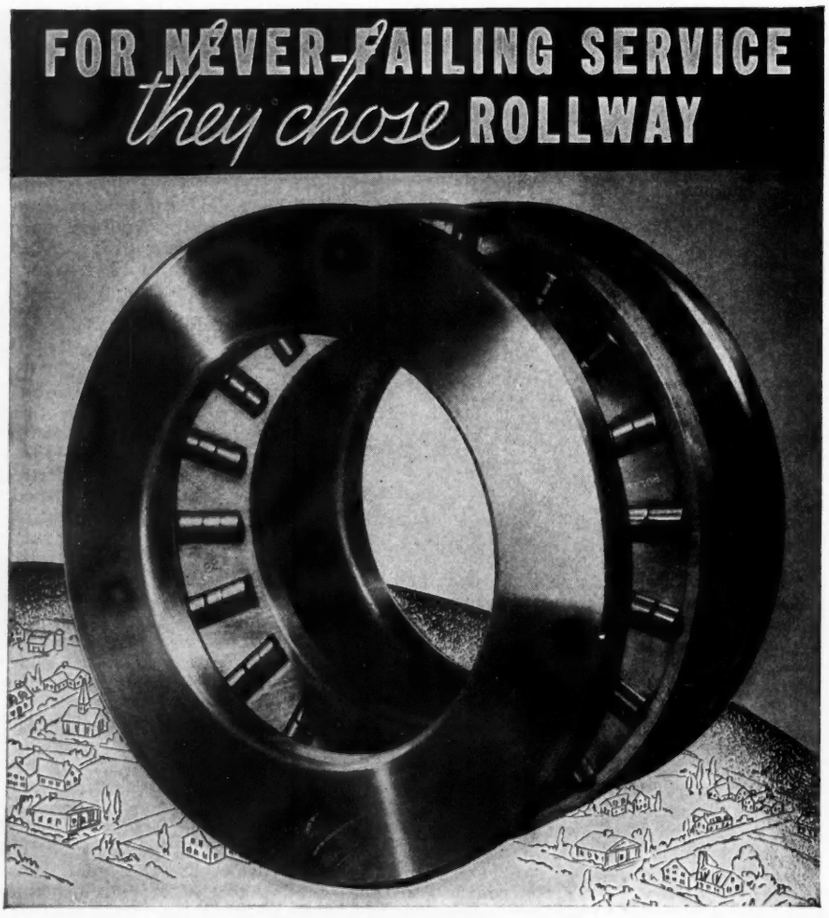
Wells can be drilled offshore on natural or artificial islands, or similar to the drilling carried on at Elwood.

Graduated royalties are provided for and are rather high.

A large number of wells have already been slanted from shore into the oil pool offshore, and just how much more producing zone can be tapped is an open question.

The state legislature also approved all contracts previously entered into with oil concerns which have wells planned to obtain offshore production. The bill also provides for certain royalties to be paid to the state if other wells are found to be producing from the tide lands.

A compromise was also reached, giving the city of Huntington Beach a small percent of the income the state might derive from production from the tide lands.



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CYLINDRICAL ROLLER ROLLWAY BEARINGS

OIL MEN'S BARBECUE

Bakersfield.—San Joaquin Valley oil men have issued an invitation to all oil men in California to attend their annual barbecue and golf tournament at Stockdale Country Club here June 5. Started in 1935, the annual event has drawn oil men from all over California each year.

CALIFORNIA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MONTEBELLO—		
Union, La Merced 26	140	3705
TORRANCE—		
Swyer Oil Co., Swyer 1	100	4445
WILMINGTON—		
Burnall Pet. Co., 960 A-1	200	3575
General Pet. Corp.'s Ford 4	1665	3590
Ford 5	1880	3600
Patten 2	595	3575
Geo. F. Getty, Inc., No. W-7	750	3610
Graham & Loftus Oil Corp., Lewis 1	500	3600
Pongratz Oil Co., Rowan 1	700	3560
Royalty Service Co. Nelson 1	685	3563
Union Pacific, Offset 8	1960	3574
Offset 10	2050	3044
Westport Oil Co., No. 6	400	3595
V. R. G. Wilbur, Com. 1	150	3580
Wilmington Oil & Dev. Co., Flint 1	400	3540
KERN FRONT—		
Republic Pet. Co. Strassburger 12	300	2026
LOST HILLS—		
Tide Water Associated, No. 5-M-3	410	1377
MOUNTAIN VIEW—		
Wood-Callahan Oil Co. No. 3	100	5964
MIDWAY SUNSET—		
Honolulu Oil Corp. No. 46	100	3625
Quality Oil Co. Bull 5	300	2185
Union, Keane 5	310	2030
MOUNT POSO—		
Ekoh Oil Co. Vedder 2	90	1528
ROUND MOUNTAIN—		
Honolulu Oil Corp. No. 87	175	1871
KETTLEMAN HILLS—		
Kettleman North Dom Assn. No. 65-28J	1195	7765
ADAM—		
Union, Vincent 2	115	3425
SANTA MARIA—		
Union, O'Donnell 1	450	4147
GREELEY—		
Standard, K. C. L. 14-1	*	8318
KERN RIVER—		
Pioneer Holding Co. No. 3	*	1308
KERN COUNTY—		
Allied Pet. Co. Allied 21	*	2656
Signal Oil & Gas Co. K.C.L. 1-A	*	8502
Superior & A. T. Jergins, Crome Com.	*	5235
Union, No. C-2 (San Emidio)	*	1839
SAN JOAQUIN COUNTY—		
Coast Explor. Co. T.F.I. 1	*	3496

*Failures; †Junked; ¶Million cu. ft. gas.

IMPORTANT WILDCAT TESTS

ARKANSAS

ASHLEY COUNTY—Joe Modisett & Phillips Pet. Co.'s Stillions Lbr. Co. 1, s½ sw nw 18-17-9w, lcn under water, rog.

CLARK COUNTY—McLarry et al's Bierne Lbr. Co. 1, ne se ne 22-10s-21w, spd set surf csg. M. W. Martin's C. L. Cabe 1, nw nw 14-10-20, sd 1002 ft shale. Carter & Burdick's Ozan Lbr. Co. 1, ne ne nw 25-9-19, rur.

CLEVELAND COUNTY—J. R. Lockhart's Ida Robertson 1, 36-10-11, cored sandy lime and shells, so 3531-36 ft, tested 4 joints mud in 10 minute drill stem test 3503-31 ft, arr core ahead.

HEMPSTEAD COUNTY — E. H. Moore, Inc.'s Porterfield 1, ne se 21-14-25, lcn.

LAFAYETTE COUNTY—King Drlg. Co.'s Walcott 1, c ne sw 36-19-26, dry abn, td 6200 ft. A. M. Neely's Meek 1, ne nw 35-19-25, fsg 3370 ft.

LITTLE RIVER COUNTY—J. G. Strahan's Dierks Lbr. Co. 1, 21-12-28, top red beds 1130 ft, top anhydrite 1804 ft, sdtr drill pipe 2330 ft.

MILLER COUNTY—W. L. McClanahan et al's (was Kimbrough et al) Capps 1, ne sw 11-20-28, elev 284 ft, dr 2670 ft. E. H. Moore's Dale 1, se nw 24-15-26, top Nacatosh 1112 ft, chalk 1505-1895 ft, top red beds 2608 ft, cored green shale, so 2838-2842 ft, tested 2 thribbles sw in 30 minutes, dr 3996 ft; Dale 2, se nw 24-15-26, top Nacatosh 1125 ft, chalk 1520-1905 ft, dr 2786 ft. Nivla Oil Corp.'s Merchants & Planters Bank 1, se se 18-15-26, coring 5188 ft.

NEVADA COUNTY—Berry Asphalt Co.'s Junie Haynie 2, se sw 6-14-20, pumping 35 bbls oil daily, td 1239 ft, CBF Pet. Co.'s Wm. Haynie 2, se ne 5-14-20, spd, woc 10-in csg 60 ft. Benedum & Trees Oil Co.'s Grove 1, 10-14-20, owdd, was pumping 200 bbls oil, 1400 sw daily, td 2190 ft. W. S. King's Wren 1, sw ne 6-13-22, dr 3100 ft gravel. S. F. Sheppard's Purifoy 1, 10-in csg 64 ft. Bruce Wallace's Wm. Haynie 3, se nw 6-14-20, mim.

OUACHITA COUNTY—H. H. Taylor's Joe McCree 1, nw sw nw 21-13-19, 10-in csg 103 ft.

PULASKI COUNTY — A. L. Kitselman's Fee 2, se se sw 21—s-13w, 4-in csg 365 ft.

UNION COUNTY—Alice Sidney Oil Co.'s Morgan 1, ne se 18-18-17, spd, dr 1000 ft. H. C. Detrick's S. L. Robbins 1, 12-19-16, woc surf csg. Lion O. R. Co.'s Edna Morgan B-1, sw nw se 18-18-17, 16-in csg 100 ft, dr 2065 ft. Marine Oil Co.'s M. Justiss 1, swc lot 7, nw 18-18-17, dr 3038 ft. W. D. Wingfield's Southern Kraft Corp. 1, sw ne 18-16-14, spd.

CALIFORNIA

FRESNO COUNTY

JACALITOS—Trico Oil & Gas Co.'s Valley Agricultural 1, 36-21-15, rig.

CANTUA CREEK—Western Gulf Oil Co.'s S.P.L. 3, 31-17-15, td 8531 ft, redr to 8525 ft, 7-in cemented at 8450 ft, shot and perforated 7 in from 6450 to 6480 ft. Cemented through perforations top and bottom of zone, swabbed 410 bbls of 35.8 gravity oil and 330 bbls water. Company has about 8000 acres under lease in large block.

KERN COUNTY

PREMIER AREA—Allied Pet. Co.'s No. 1 (21), 29-27-27, abn at 2656 ft in gray sand. Bojaki Oil Co., Bowen 1, 28-27-27, sd 1959 ft.

LERDO—Arkelo Pet. Co.'s Arkelo 1, 23-28-26, td 10,056 ft, fsh dr pipe

GRAPEVINE—Buffalo Oil Co.'s Tejon 1, 5-10-19, sd 4452 ft. Ohio Oil Co.'s Title Ins. D-1, 21-11-19, dr hard shale 8174 ft. Reserve Oil & Gas Co.'s No. 2-6, 2-10-19, dr shale 1314 ft; Ritchie 33-1, 33-11-19, td 6030 ft, plug 4990 ft, sd; Tejon 33-2, td 4505 ft, redr to 4476 ft, sd; Tejon 33-3, td 4431 ft, shut in; Tejon 33-4, rur.

BENA—Caljalco Pet. Co.'s Brown-Pallette 1, 9-30-30, rur.

KERN FRONT—Chanslor-Canfield-Midway's Carter 1, 35-27-27, rig. Seskayden Oil Co.'s No. 3-A, 17-28-27, td 2890 ft, rebuilding rig.

WASCO—Continental Oil Co.'s K.C.L. A-1, 8-27-24, td 9561 ft, flowing 25 bbls 28 gravity oil through 4 in dr pipe on gas lift. Seaboard Oil Corp.'s Continental C-1, 26-27-24 dr shale 7660 ft.

ROSEDALE—Continental Oil Co.'s K.C.L. B-1, 12-29-26, td 7047 ft, wocs 8⅝ in at 5045 ft.

DEVIL'S DEN—Den Pet. Co.'s Bates 1, 20-25-19, td 4060 ft, rep equip. Geo. Goodrum's Baron 1, 24-25-18, dr shale 300 ft. Lube Oil Co.'s Gordon 1, 2-25-18, sd 4280 ft.

JASMINE—Doyle Pet. Corp.'s Quinn 1, 15-25-27, td 2956 ft, plug 2882 ft, sd; Quinn 2, td 2922 ft, top granite 2707 ft, running formation tester.

ROUND MOUNTAIN—Eastmont Oil Co.'s Olcese 1, 16-28-29, td 1916 ft, gray sand, plug 1890 ft, wocs 8⅝ in at 1837 ft.

ELK HILLS—Elk Hills Pet. Co.'s No. 1, 14-31-28, sd 7580 ft.

NO. KERN RIVER—Hub Oil Co.'s No. 1, 8-28-28, dr shale 2085 ft.

RIO BRAVO—Mohawk Pet. Co.'s K.C.L. 1, 23-29-25, dr sand and shale 8366 ft. Petroleum Securities Co.'s Wright 1, 23-29-25, spud and sd, to drop from report. Union's No. 1-34, 34-28-25, dr shale 6620 ft.

ROUND MOUNTAIN—Pageman & Hennes' Pagehen 1, 10-28-29, dr shale 1112 ft.

GOSFORD—Signal Oil & Gas Co.'s K.C.L. 1-A, 21-30-27, td 8502 ft, in gray sand, abn practically all gray sand from 7236 ft to bottom.

WEST MOUNTAIN VIEW — Sunset Oil Co.'s Sunset-Starr 1, 17-30-28, dr sand and shale 3800 ft.

McGUNDEN—Superior Oil Co. & A. T. Jergins Trust's Crome Com. 1, 23-29-28, td 5325 ft, plug 3178 ft, abn. Well was cored to bottom.

TEN SECTION—Shell's Canal 21-14, 14-30 25, dr shale 7103 ft. Superior Oil Co. & Union Oil Co.'s K.C.L. 8, 11-30-26, is coring shale and sand at 11,508 ft, deepest drilling well in state, 7-in is cemented at 10,380 ft.

SO.MARICOPA — Trans-Line Pet. Corp.'s No. 1, 3-10-23, sd 662 ft.

SAN EMIDIO—Union's No. C-2, 33-11-22, abn 1839 ft in shale; No. 3-C, 33-11-22, spud 4/28, core hole, dr.

MIDWAY-SUNSET—Valley Oil Co.'s No. 1, 18-32-23, sd 2815 ft.

BAKERSFIELD—Wilshire Oil Co.'s F & P 1, 36-29-27, foundation. Cohn 1, 35-29-27, lcn, td dr F & P 1 first.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*	owdd—*old well drilling deeper.*
‡—*salt water (completions).*	owpb—*old well plugging back.*
†—*junked and abandoned.*	pb—*plugged back or plugging back.*
¶—*million feet of gas.*	r—*reaming.*
abd—*abandoned.*	rog—*rig on the ground.*
bbls—*barrels.*	rur—*rigging up rotary tools.*
br—*building rig.*	rust—*rigging up standard tools.*
b.s.—*basic sediment.*	sd—*shut down.*
csg—*casing.*	sdtr—*sidetracking.*
co—*cleaning out.*	sg—*show gas.*
dd—*drilling deeper.*	si—*shut in.*
dk—*derrick.*	so—*show oil.*
dr—*drilling.*	so&g—*show oil and gas.*
fsg—*fishing.*	spd—*spudding.*
ft—*feet.*	sr—*straight reaming.*
hfw—*hole full of water.*	sw—*salt water.*
in—*inches.*	td—*total depth.*
lcn—*location.*	ur—*underreaming.*
m—*milling.*	wih—*water in the hole.*
mim—*moving in materials.*	wo—*workover.*
mit—*moving in tools.*	wocs—*waiting on cement to set.*
mot—*milling on tools.*	wosr—*waiting on standard rig.*
n, s, e, w—*north, south, east, west.*	
oih—*oil in hole.*	

MISCELLANEOUS

HUMBOLDT COUNTY—Texas Co.'s Eureka 2, 22-3-1, dr shale 7513 ft.

KINGS COUNTY—Birch-Royer Oil Co.'s Wm. Orr 1, 5-23-17, bldg rig. Central Calif. Utilities Co.'s Kettleman-Lakeview 3, 11-23-19, td 1207 ft, plugging bottom. Dudley Ridge Oil Co.'s No. 2, 24-23-30, rur. Kettleman View Oil & Gas Co.'s No. 1, 9-22-19, td 4787 ft, wocs 6⅝ in at 3400 ft. T. G. Norrell's Guess 1, 7-21-21, sd 6172 ft. Glen C. Stone's Teeter 1, 25-20-20, td 1040 ft, wocs 8⅝ in at 790 ft. Tri-Counties Oil Co.'s Olson 1, 10-23-22, dr sandy shale 3976 ft.

SAN BENITO COUNTY—Tide Water Associated's Murphy Ranch 1, 5-12-4, td 6913 ft, did not recement, dr pipe froze.

SAN JOAQUIN COUNTY—Coast Explor. Co.'s T. F. I. 1, 2-3-4, td 3496 ft, abn. Standard's McDonald Farms 3, 24-2-4, td 5339 ft, 6⅝ in froze at 4990 ft, circulating oil, formation tester at 5239 to 5339 ft, showed 8,000,000 cu ft gas.

SOLANO COUNTY—Amerada Pet. Corp.'s Drouin 2, 25-4-2, td 4463 ft, gas well shut in; Emigh 2, 26-4-2, td 4505 ft, ran liner plus 117 ft, perforated, shut in, no test; Marks 1, 24-4-2, ready to spud.

SUTTER COUNTY—Buttes Oil Fields' No. 4, 2-15-1, td 5800 ft, showed good for 1,000,000 cu ft gas.

TULARE COUNTY—J. W. Alford's Williams 1, 28-16-23, sd 1023 ft, to drop from report. R. R. Ellis' Ellis 1, 20-24-23, rig, to drop from report. E. P. Jennings' No. 1, 4-4-23, td 2707 ft, plugged and to redr; No. 2, 33-23-23, rur.

MONTEREY COUNTY—Amil A. Anderson's No. 1, 15-24-14, dr blue shale 740 ft. Shell's Branch 2, 34-24-10, dr shale 8115 ft.

SAN LUIS OBISPO COUNTY—Aviation Oil Co.'s Birnall 1, 10-11-35, td 1930 ft, redr to 1200 ft, sd. Barnsdall's K.C.L. 1, 1-32-20, dr shale 4761 ft. I. L. Burch's No. 1, 3-10-26, td 3209 ft, set 8⅝ in at 1460 ft, wet to recement. Burkholder Oil Corp.'s Clay 1, 14-10-26, dr blue shale 2820 ft. Gretna Corp.'s Miano 1, 25-30-10, dr shale 750 ft. Pismo Pet. Co.'s No. 1, 5-32-13, td 4425 ft, fsh for dr pipe. Temblor Oil Co.'s No. 1, 22-31-21, td 960 ft, good for 1,000,000 cut ft gas, dr ahead.

SANTA BARBARA COUNTY—E. C. Arnold's Arnold-Apache 2, 8-8-33, rur. Cohn & Mitchell's Gracomiani 1, 18-10-34, foundation. Leroa Oil Co.'s Fithian 1, 8-4-25, td 1025 ft, to deepen, formerly Julius Dietzman. Murdock & Allins No. 1, 16-7-30, material on lcn. Nine Springs Oil Co.'s Brinkinhoff 1, 9-7-30, sd 3300 ft. W. D. Shaffer's Houk 1, 9-9-33, sd 5003 ft. Todos Santos Oil Co.'s No. 1, 29-9-34, td 2365 ft, co. Union's Russell 1, 21-10-34, foundation. Valley Oil Co.'s Chief 1, 20-9-34, td 1901 ft, wocs 8⅝ in at 1350 ft.

VENTURA COUNTY—Continental Oil Co.'s Casitas 1, 7-3-23, dr hard shale 6676 ft. El Rio Oils-Canada's Speik Oil Co.'s Speik 1, 35-5-19, dr shale 2360 ft. Vai Giovanni's Scott 1, 4-4-21, rur.

SOUTHERN CALIFORNIA

NEWHALL—Barnsdall's Rancho San Francisco 1, 26-4-17, td 6472 ft, killed and pulling liner, may deepen, was producing 135 bbls 36 gravity oil; Rancho San Francisco 2, lcn. Holbrook Pet. Co.'s Newhall Land 1, 28-4-16, td 5089 ft rigging heavier equip.

LYNWOOD—Calizoo Oil Co.'s Saulque 1, 9-3-13, td 4320 ft, co.

PICO CANYON—A. G. Burt's No. 1, 36-4-17, dr shale 1074 ft.

ARTESIA—Caltana Corp.'s Caltana 1, 11-4-12, dr brown shale 5624 ft.

NO. LONG BEACH—Geo. L. Clayton's Clayton 1, 32-3-12, dr sand and shale 4640 ft.

FOX HILLS—Country Club Oil Co.'s Country Club 1, td 2970 ft, sidetracking fish at 2740 ft.

DAVIDSON CITY—Hilldon Oil Co.'s Flood Control 1, 11-4-13, td 6105 ft, ran 500 ft 4½ in liner, including 220 ft perforated, landed 6105 ft, testing.

WEST COYOTE—Hogan Pet. Co.'s McNally 1, 23-3-11, dr sand and shale 5125 ft, rumored will set pipe, but no information given out.

WALNUT—Julian & Criswell's Langstaff 1, 5-2-9, dr shale and sand 1804 ft.

HERMOSA BEACH—Leora Oil Co.'s No. 1, 31-3-14, td 5465 ft, plug 3935 ft, ran 229 ft 6⅝ in including 169 ft of perforated, pumping 180 bbls gross 60 percent water and mud.

PALOS VERDES HILLS—McClaren Bros.' No. 1, 27-4-14, td 3970 ft, redr to 1866 ft, to set 8⅝ in

ROSECRANS—Shell's McKinley 4-1, 20-3-13, sd 7744 ft.

ORANGE COUNTY—Mesa Oil Co.'s Mesa 1, 29-6-10, dr hard gray shale, slight showings oil and gas in ditch, 7344 ft. Shell's Mathis 1, 23-4-10, td 5944 ft, plug 4481 ft, ran 4¼ in including 155 ft of perforated, landed at 4470 ft, bailing water, trace oil. Thomas & Moulton's Kraemer 1, 21-3-9, spudded 4/23, dr.

FLORIDA

LAKE COUNTY—Oil Dev. Co. of Fla.'s Gulf Expl. Co. 2, se se 17-24s-25e, elev 120 ft, massive anhydrite 2434-3066 ft, top Selma chalk 3454 ft, top Eutaw 5322 ft, pb to 2970 ft, setting 6⅝ in csg, old td 6124 ft.

LEVY COUNTY—Fla. Oil Discovery Co.'s Sholtz 1, sw ne 9-15s-13, mim.

NASSAU COUNTY—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw ne se 19-4n-24e, elev 110 ft, dr 1443 ft with ct.

POLK COUNTY — Edw. A. Hill's Polk County Lbr. Co. 1, nw nw ne 32-25s-25e, dk.

KANSAS

BARBER COUNTY — Pryor & Lockhart's Gant 1, cse¼ 7-31s-13w, rot rig. Barbara Oil Co.'s Homes 1-27, cnw nw 27-33s-13w, cel.

BARTON COUNTY—Herndon Drlg. Co. & Morgan & Flynn's Robenseifer 1, cnw 7-8s-15w, ur 12 in csg 1076 ft. C. L. Price et al's Kraft 1, sw nw ne 10-17s-11w, A & P 160 bbls oil 5 hrs, testing. C. L. Carlock's Leibel 1, se ne se 18-18s-11w, ur 8 in csg 2575 ft. Ralph Wixon & Union O & R Co.'s Frederick 1, nw nw nw 12-16s-13w, td 3391 ft, D & A. George Dickey et al's Boger 1, se se ne 15-16s-13w, dr 2535 ft. C. L. Carlock's Ehly 1, ne ne se 5-18s-11w, rust. C. H. Weaver's Stumps 1, ne ne ne 3-17s-12w, dr 2075 ft. Wakefield et al's Scheurmann 1, ne ne sw 31-16s-15w, sd 2470 ft. Stanolind O. & G. Co.'s Struder 1, se se sw 26-16s-13w, rur. S. E. Bailey's Hammeke 1, ne ne sw 12-18s-12w, sd 2190 ft. Stanolind's Meggars 1, sw sw sw 21-20s-11w, cor 3295 ft. Continental Oil Co.'s Lamatsch 1, sw ne ne 26-17s-12w, dr 250 ft. Hanna's Luce 1, sw sw sw 21-20s-13w, rig. Sam Murphy's Beck 1, ne ne ne 17-17s-12w, mim.

BUTLER COUNTY—C. L. Seibel et al's Bisagno 1, se se nw 24-25s-6e, td 2743 ft, ur 6 in csg. Vickers Pet. Co.'s Voth 1, cnl s½ sw ne 32-24s-4e, set 8 in csg 2107 ft, dr 2439 ft. Sid Neff et al's Church 1, sw ne se 8-28s-5e, td 1875 ft, D & A. Kahn et al's Madden 1-A, sw sw ne 27-23s-4e, td 2218 ft. Simpson Oil et al's Dennis 1-A, ne ne sw 15-26s-6e, lcn.

CHASE COUNTY—Propp et al's Fromm 1, se se se 29-18s-9e, set 6 in csg 2450 ft, dr 2450 feet.

CHAUTAUQUA COUNTY — W. M. McKnab's Griffith 1, sw sw sw 11-32s-10e, td 2081 feet, D & A. E. I. Shaffer's Nuckalls 1, nw nw nw 12-33s-9e, dr 1325 ft. Ira Scott et al's Lambe 1, sw nw ne 18-33s-13e, dr 1530 ft.

COWLEY COUNTY—Tom Palmer's Lowe 1-A, sw se se 3-32s-5e, td 3589 ft, D & A. Ryan Consolidated's Couch 1, sw sw se 13-30s-5e, set 5 in csg 2794 ft, swb 70 bbls oil, 19 hrs & est 15 bbls wtr. Elmer Ash et al's Bolack 1, nw nw se 22-32s-6e, co 1440 ft. Bess & Gralapp et al's Wakefield 1, ne se sw 18-30s-6e, dr 1512 ft. Murta & Wilson's Turner 1, ne ne nw 30-32s-6e, rig. Blair, Continental & McKnab's Miller 1, ne nw sw 14-32s-5e, mim. Tulsa Oil et al's Dillon 1, nw nw ne 28-34s-3e, lcn. McCoy, Amerada & Wentz' Anderson 1, se nw ne 34-34s-6e, set 15 in csg 392 ft, dr 570 ft.

DECATUR COUNTY—Bruce et al's Newbold 1, cne sw 34-2s-28w, sd.

EDWARDS COUNTY—Royal Pet. Co. et al's Krupp 1, nw nw se 18-24s-19w, whpstk 2240 ft.

ELLIS COUNTY—Empire's Samuelson 1, ne ne ne 31-11s-16w, woc. Murphy Oil Co.'s Weisner 1, se se sw 12-14s-19w, dr 384 ft. Mazda Oil Co.'s Henderson 1, sw sw ne 27-11s-18w, dr 2240 ft. Noble Pet. Corp.'s O'Laughlin 1, nw nw se 13-12s-19w, dr 3230 ft. Wakefield's Putnam Mortgage Co. 1, se se nw 32-15s-17w, ur 5 in csg 3483 ft. Bridgeport Mach et al's Froelick 1, nw nw se 4-13s-16w, set 8 in csg 2700 ft, co. J. C. Shaffer, Inc.'s Staab 1, se se se 25-12s-18w, rur. J. J. Muth's Penny 1, nw ne se 29-14s-18w, spd & sd. Elwell & Tree Oil Co.'s Wickham 1, sw sw ne 10-11s-19w, dr 1465 ft. Billings' Smith 1, se se nw 14-12s-16w, dr 1005 ft. Austin Drlg. Co.'s Karlin 1, nw nw nw 13-12s-18w, mim.

ELLSWORTH COUNTY—Orville Lee's Larkin 1, nw nw nw 15-16s-8w, dr 390 ft. Frost et al's Dolechek 1, ne ne sw 36-14s-8w, set 6 in csg 3020 ft.

GREENWOOD COUNTY—Ohio Oil Co.'s Schwab 1, se sw se 9-24s-10e, P 3 bbls oil and 100 bbls wtr per day. Shull Drlg. Co.'s Cannon 1, ne se ne 23-25s-12e, dr 1840 ft. L. C. Balwanz' Travellers Ins. Co. 1, csw sw 23-26s-10e, fsg 1745 ft.

HAMILTON COUNTY—Denver P. & R. et al's Porter 1, sw sw ne 30-25s-41w, rot rig.

HARPER COUNTY—Carter Oil Co. et al's Seihart Estate 1, csw nw 4-34s-8w, so & g 4580-95 ft, dr 4518 ft.

HARVEY COUNTY—E. I. Shaffer et al's Epp 1, se se sw 15-23s-3w, cel. E. J & E. B. Shawver's Hege 1, ne ne se 26-22s-2w, rig. Bell O. & G. et al's Austin 1, se ne ne 28-23s-1e, rot rig.

KINGMAN COUNTY—Skelly Oil Co.'s Interurban 3, csw¼ 30-27s-10w, td 4154 ft, pb 4035 ft, 52,900,000 cf gas, RP 1495 lb, comp.

McPHERSON COUNTY—Hutchinson O. & G. Co.'s Berg 1, sw sw se 15-20s-3w, td 3613 ft, D & A. Bradley Bros.' Barnholt 1, sw sw se 30-20s-5w, dr 2265 ft. Smith et al's Larson 1, nw nw sw 35-18s-5w, dr 390 ft. Lauck & Moncrief's Krehbiel 1, se se sw 27-21s-2w, dr 3054 ft. C. E. Ash Drlg. Co.'s Broman 1, ne ne nw 19-17s-4w, cel.

MITCHELL COUNTY—Geo. Seidhoff et al's Greiss 1, sw sw se 16-8s-10w, ur 8 in csg.

NESS COUNTY—Newton Dev. Co.'s Tenny 1, nw nw se 19-18s-25w, dr 4200 ft.

OSBORNE COUNTY—J. E. Waldron's Neuschwanger 1, se ne nw 11-8s-14w, spd & sd.

PAWNEE COUNTY—Canshaw et al's Riederer 1, cw½ nw se 29-21s-19w, dr 4100 ft.

RENO COUNTY—Clyde Pulse et al's Payne 1, sw nw ne 4-22s-7w, shot w/40 qts 3244-62 ft, fsg csg. Olson Drlg. Co. et al's Herriman 1, nw nw nw 22-24s-8w, td 4193 ft, D & A. Imo O. & G. Co. et al's Watkins 1, se se se 14-22s-7w, dr 1700 ft. Westgate-Greenland Oil Co.'s O'Sullivan 1, sw sw ne 24-23s-5w, dr 3630 ft. Sinclair Prairie's Nett 1, nw nw se 32-26s-4w, dr 3410 ft.

RICE COUNTY—T. C. Johnson's Schubert 1, sw sw sw 9-20s-10w, td 3429 ft, D & A. L. E. Douglas' Coyne 1, ne se se 24-21s-8w, hfw & set 8 in csg 2446 ft, 4 bbls wtr 2510-70 ft. John Hanna et al's Fulton 1, nw nw ne 24-19s-6w, set 8 in csg 2790 ft, dr 2827 ft. Fred Phillips et al's Hubenett 1, sw ne sw 23-20s-8w, 4 bbls wtr 2605 ft, set 8 in csg 2710 ft, co. W. E. Witt et al's Fair 1, ne se se 4-22s-8w, sd 1890 ft. Union O. & R. Co. et al's Baker 1, sw sw ne 33-20s-6w, dr 2780 ft. Comanche Oil Co.'s Cramm 1, sw sw se 15-19s-9w, ru. Hipple et al's Wernet 1, ne ne nw 11-20s-6w, dr 870 ft. Empire O. & R. Co.'s Bredfeldt 1, cn½ n½ sw 7-18s-9w, dr 2684 ft.

ROOKS COUNTY—Lester & Dean's Burtt 1, se se se 29-10s-20w, dr 3673 ft. Phillips Pet. Co.'s Manquist 1, sw sw nw 9-9s-17w, dr 2680 ft. Jones Bros. Drlg. Co.'s Wiss 1, nw nw nw 8-10s-8w, ur 8 in csg 2980 ft. Basin Oil Co.'s Baxa 1, ne ne ne 23-9s-17w, dr 3297 ft. Buckner & Schoff's McConnell 1, ne ne ne 34-6s-18w, td 3542 ft, D & A. S. C. Hoel et al's Ives 1, sw sw ne 11-7s-18w, sd 485 ft. Brunson Drlg. Co. et al's Casey 1, se se ne 22-9s-16w, ur 15 in csg 775 ft. Graham et al's Fike 1, sw sw sw 9-9s-17w, fsg 3301 ft.

RUSH COUNTY—S. A. Murphy et al's Roth 1, nw nw sw 21-16s-18w, co. Duee & Brouk's Lebsack 1, se se ne 13-16s-16w, set 12 in csg 535 ft.

RUSSELL COUNTY—S. A. Murphy et al's Deines 1, se se sw 36-15s-15w, fsg 2500 ft. Goldstein & Vernon O. & G. Co.'s Steinert Estate 1, ne se sw 34-15s-15w, dr 615 ft. Aylward et al's Jones 1, se se nw 22-14s-13w, rig. Equity Gas Co.'s Harbauk 1, nw ne sw 19-13s-12w, sd 1580 ft.

SCOTT COUNTY—Olson Drlg. Co. et al's Nolan 1, nw nw ne 13-19s-33w, set 15 in csg 292 ft, woc.

SEDGWICK COUNTY — Cameron et al's Smith 1, sw se se 13-27s-2e, set 5 in csg 3144 ft, hfw 3144-47 ft. Swearer et al's Thome 1, sw sw nw 19-28s-1w, dr 3690 ft. Roxanna Drlg. Co. et al's Woodman 1, sw nw sw 26-26s-1w, sd 2469 ft. Empire O. & R. Co.'s Kimel 1, nw nw nw 4-29s-2w, td 4131 ft, D & A. E. B. Shawver's Furman 1, sw ne se 24-29s-3w, ur 13 in csg 1616 ft.

STAFFORD COUNTY — W. P. Faulkner's Schulz 1, se se ne 6-22s-13w, ru.

SUMNER COUNTY—Graham et al's Dawson 1, nw nw nw 4-33s-2w, fsg 4255 ft. The Texas Co.'s Harper 1, ne sw se 9-30s-3w, rust 3827 ft. Faulkner et al's Nevitt 1, ne nw ne 36-32s-2e, P 3 bbls oil per hr and sw. Glimar Oil et al's Proud 1, sw se se 33-30s-1w, sd 450 ft.

WOODSON COUNTY—Harper et al's Miller 1, nw ne se 10-24s-14e, td 1673 ft, D & A. Katz et al's Guy 1, sw sw se 6-24s-15e, dr 1122 ft.

SOUTH LOUISIANA

ACADIA PARISH—Humble's Federal Land Bank 1, North Crowley prospect, 34-8s-1e, dr shale 3569 ft.

CALCASIEU PARISH—D. & D. Oil Co.'s Lutcher Moore 1, nw of Starks, 1-8s-13w, td 8557 ft, sdtr.

CAMERON PARISH — Magnolia's Albert Dobbertine 1, Johnson Bayou prospect, 9-15s-14w, abn 8309 ft. Southern Oil Co.'s State Maritime 2, 15s-10w, sd 2611 ft. Union Sulphur's Hebert 1, Big Lake area, 18-12s-8w, shale 8109 ft.

EAST BATON ROUGE PARISH—Cavalier Oil Co.'s Elliott 1, n of Hope Villa, 3-8s-2e, ru. Same operator's Young 1, Port Hudson, 52-4s-1w, dr shale 3208 ft.

EVANGELINE PARISH — Bel Cheney Springs Oil Co.'s Fee 1, 10-2s-1w, sd 2214 ft. Continental-Humble's Pardee Lbr. Co. 1, Reddell area, 18-4s-1w, dr shale 8714 ft.

IBERIA PARISH—Jefferson Lake Oil Co.'s Lake Pelgneur 414, Jefferson Island dome, 12s-5e, pb from 7060 ft to 5300 ft.

JEFFERSON DAVIS PARISH—Louisiana Crusader's I. Langley 1, Fenton area, 36-7s-

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WELL TOOL & SUPPLY COMPANY

SHREVEPORT, LOUISIANA

Lake Charles—Houma—Converse
New Iberia—Rodessa—Monroe—Cotton Valley—Greggton—Houston

5w, coring salt water sand 7415 ft. Stanolind's Calcasieu National Bank 2-B, China prospect, 28-7s-3w, dr shale 509 ft; same operator's Calcasieu National Bank 2, South Jennings area, 10-10s-3w, dr shale 300 ft.

LA FOURCHE PARISH—Fohs Oil Co.'s State Long Lake 1, Bourg prospect, 65-17s-19e, dr shale 8165 ft. William Helis' City of New Orleans 1, Marchland prospect, 19-23s-23e, abn 8012 ft.

PLAQUEMINES PARISH — Gulf's State Bay Adams 1, in Bay Adams, 32-19s-28e, dr shale 4387 ft.

ST. BERNARD PARISH—Gulf's Lake Lery 1, Lake Lery prospect, 28-14s-14e, coring shale and sand 6109 ft. Southern Sulphur Co.'s State 2, in Lake Borgne, 38-14s-15e, sd 3180 ft.

ST. CHARLES PARISH—Amerada-Louisiana Land & Exploration Co.'s State Bayou Des Allemands 1, Black Prince Island prospect, 13-15s-20e, dr shale 2150 ft.

ST. LANDRY PARISH—Shell's Boagni 1, ne of Cankton in Bristol area, 48-8s-4e, dr shale 7553 ft.

ST. MARTIN PARISH—Joe E. Lilly et al's R. Martin 1, Section 28 prospect, 32-10s-7e, repairing dk, 796 ft. The Texas Co.'s State Mongouloi 3, Lake Mongouloi prospect, 14-10s-9e, dr shale 7930 ft; same operator's St. Martin Land Company 9, Henderson salt dome, 21-8n-7e, waiting on material 8855 ft.

ST. MARY PARISH — Texas Co.'s State Bateman Bay 1, Morgan City prospect, 21-16s-12e, leveling barge 8953 ft; same operator's Horseshoe Bayou 1, Wax Lake prospect, 40-17s-9e, preparing to dr ahead 11,769 ft.

TERREBONE PARISH—Humble's Elender 1, Houma Gas Field, 23-19s-19e, testing 12,165 ft.

MICHIGAN

GLADWIN COUNTY—Bell & Marks' Winman 1, 9-17n-1e, completing. Pray & Caldwell's Flynn 1, 4-17n-1e, dr 2200 ft.

HILLSDALE COUNTY—Jacob Beck's Beck 1, 15-6s-3w, dr 1510 ft.

INGHAM COUNTY — National Mineral Corp.'s Smith 1, 9-4n-1w, dr 2630 ft.

IOSCO COUNTY—Pabst Pet.'s Monfort 1, 8-22n-6e, em.

ISABELLA COUNTY — Socony-Vacuum's Murphy 1, 6-16n-3w, pb to Stray. Gulf's Koch 1, 1-13n-4w, dr 1780 ft.

KENT COUNTY — Central Michigan's Fletcher 1, 25-7n-10w, dr 2635 ft. Flanigan's Friedli 1, 26-7n-9w, dr 2410 ft. Michigan Oil Exploration's Croff 1, 35-7n-9w, fsg 5200 ft.

MIDLAND COUNTY — T. F. Caldwell's Kriegel 1, sec 36-15n-1w, dp 100 ft.

MISSAUKEE COUNTY — Rex Oil Co.'s Meekoff 1, 30-21n-6w, dr 2300 ft.

MONTCALM COUNTY—Charles Weller's Herzog 1, 12-12n-8w, cmpg. Jetter Dev. Co.'s Powell 1, 34-10n-6w, dp 205 ft. Rex Oil's Keeler-Church 1, 17-12n-5w, dr 3410 ft. Flanigan's Pierson 1, 13-11n-10w, abd.

SAGINAW COUNTY — T. F. Caldwell's Birch Run Bank 1, 10-10n-5e, dr 650 ft.

MISSISSIPPI

HARRISON COUNTY—Big Ridge Oil Co.'s Hingin 1, se se 13-7s-10w, rur to deepen, td 2150 ft.

HINDS COUNTY — State of Mississippi's Fee 2, nw nw 25-6n-1e, elev 326.5 ft, perf csg at 2407 ft, making est 10 to 15 mil ft gas and some fresh water, rock pressure 915 lbs, old td 5529 ft.

JONES COUNTY—Snow-Black Pet. Co.'s Cranford 1, s½ nw 29-7n-12w, tested 2 fourbles drilling fluid 3480 ft, coring 4005 ft.

LAMAR COUNTY — Sun Oil Co. et al's Mrs. K. Talley 2, nw ne nw 33-4n-15w, elev 402 ft, tested 190 ft drilling mud and later 1400 ft sulphur water, abn 3027 ft, moving 1500 ft south for Mrs. Kate Talley 3, same section.

PIKE COUNTY — Acadian Prod. Corp.'s Bales 1, c se nw 24-7n-2w, dk and mir.

SIMPSON COUNTY—Goodwill O&G Co.'s Berry 1, 33-2n-4e, dk and rog.

OKLAHOMA

ALFALFA COUNTY—Olson Drlg Co. et al's Acre 1, csw ne 14-24n-11w, swbng at 5800 ft.

BECKHAM COUNTY—Mid-American Oil Co.'s Biscoe 1-A, sw sw sw 28-8n-22w, dr 1858 ft. Carter Oil Co.'s Porter 1, csw sw 36-10n-25w, dr 485 ft. Carter's Bingham 1, ne ne ne 31-8n-26w, dr 170 ft.

CLEVELAND COUNTY — Hollenback's Stinson 1, nw nw ne 17-9n-2w, dr 5085 ft.

COMANCHE COUNTY — C. V. Morris' Young 1, se ne se 24-3n-10w, dr 1000 ft. C. Holliday's Kuntz 1-A, cse ne se 21-4n-11w, sd 2338 ft.

CREEK COUNTY—Mosier et al's Holcomb 1, se sw ne 19-18n-8e, dr on bailer 2935 ft.

GARFIELD COUNTY — Arab Oil Co.'s Harkendorf 1, ne ne ne 34-20n-3w, ssw on dst; dr 6012 ft. Ohio Oil Co.'s State 1, sw sw sw 13-23n-2w, dr 2958 ft.

GARVIN COUNTY — Hayes Drlg. Co.'s Howell 1, cse nw 34-1n-1e, td 4013 ft, D&A.

GRADY COUNTY—Western White Lily Oil Co.'s Stover 1, cse sw nw 33-3n-7w, td 3507 ft, D&A.

GREER COUNTY — Nelf-Godfrey-Andre's Melton 1, cse nw se 16-3n-22w, dr 1770 ft.

HASKELL COUNTY—Continental Oil Co.'s Anderson 1, sw se ne 33-8n-20e, woc 630 ft.

HUGHES COUNTY—Cap Rock Oil Co.'s Parks 1, csw se 34-7n-8e, dr 2970 ft. Chas. Thornton's Eason 1, ne ne nw 7-9n-11e, rig. E. H. Moore's Buck 1, (was Southern Oil Co.'s), nw sw sw 21-8n-10e, brr.

JEFFERSON COUNTY—Gulf Oil Corp.'s Woodworth 1, cnw nw ne 20-3s-4w, dr 2810 ft. Olson, Heenan & Coe's Rose 1, csw sw 1-5s-5w, dr 2760 ft. Massad & Swansberger's Barrett 1, ne se se 14-6s-6w, sd 1842 ft. A. T. Campbell et al's Trout 2, cw½ w½ ne 6-8s-7w, dr 1400 ft.

KAY COUNTY—Higdon et al's Nieman 1, ne nw ne 9-26n-3e, sd 317 ft.

KIOWA COUNTY — Kiowa Oil Corp.'s Finder 1, csw ne 4-6n-20w, dr 130 ft. Argus Pet. Co.'s Osbourne 1, nw nw ne 9-7n-16w, sd for csg.

LATIMER COUNTY—Clark Drlg. Co. et al's Wilson 1, cse se 15-5n-18e, td 4572 ft, sd.

LeFLORE COUNTY—McGraw et al's Tidwell 1, cnw 17-3n-22e, dr 2976 ft.

LINCOLN COUNTY — Anderson-Prichard's Colon 1, nw se sw 28-17n-4e, testing. Mid-Continent Pet. Corp.'s Logan 1-A, ne ne se 31-11n-5e, dd to 4844 ft; 1800 ft oih.

LOGAN COUNTY—Anthony & Marshall's Fruin-Eckman 1, se se sw 4-16n-1e, to reacidize. Helmerich & Payne et al's Randall 1, sw sw ne 24-16n-1w, dr 1950 ft. Eason Oil Co.'s Sisters 1, sw sw sw 24-17n-1w, dr 4530 ft.

LOVE COUNTY—Sinclair Prairie's Stockton 1, se se sw 26-6s-2w, rur to fish.

MARSHALL COUNTY—Stewart & Taylor's Chestnut 1, ne ne ne 23-8s-5e, td 788 ft; pb 787 ft; p 40 bbls oil, 50 percent water.

MURRAY COUNTY—Russell's Fee 1, se nw se 9-2s-3e, dr 1815 ft. Power Oil Co. et al's Lancaster Trust Co. 1, csw ne 10-1s-2e, pb 3175 ft, sd. O. O. Owens' Fryer 1, ne se ne 34-1s-3e, td 535 ft.

NOBLE COUNTY—Lincoln Oil Co. et al's Neil 1-A, ne ne ne 15-23n-2w, dr 4581 ft.

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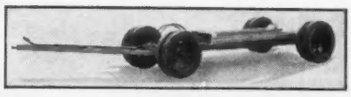

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THE BUCKEYE TRACTION DITCHER CO., FINDLAY, OHIO

Summitt Drlg. Co. et al's Dolezal 1, se se sw 8-22n-1w, set 12½-in csg 127 ft, dr 2050 ft. Magnolia Pet. Co.'s Forsythe 1, se se sw 23-21n-2w, set 12½-in csg 291 ft, dr 2232 ft.

OKFUSKEE COUNTY—Mid-Continent Pet. Corp.'s Gofford 1, ne ne nw 35-12n-7e, sdo 4638 ft. Oklahoma Oil Corp.'s Campbell 1, se se ne 8-10n-9e, rig.

OSAGE COUNTY—Helmerich & Payne's No. 1 (was Norbla Oil Co.'s), ne ne se 13-23n-6e, td 735 ft.

PAYNE COUNTY—H. F. Young's Jenkins 1, se ne se 4-17n-3e, dr 4595 ft. Riddle's Van Zandt 1, nw nw se 16-18n-3e, spd 80 ft and rur.

PONTOTOC COUNTY—Southern Oil Co.'s Young 1, ne ne se 17-3n-7e, C&P. Papoose Oil et al's Jones 1, nw se nw 2-4n-5e, rur. Delaney et al's Norris 1, nw nw se 18-4n-8e, spd and sd.

SEMINOLE COUNTY — Sinclair Prairie's Rossanna 1, nw nw sw 28-10n-8e, 3000 gals A; testing. J. E. Hall et al's White 1, se nw se 30-6n-8e, hfo, pop. Amerada & Stanolind's Reed 1, se sw se 19-10n-8e, dr 3597 ft. A. I. Spears' Keaton 1, nw nw nw 6-5n-8e, dr 2560 ft.

STEPHENS COUNTY—Edwards' Frederick 1, ne se nw 31-2n-8w, td 2754 ft, sd. Carter Oil et al's Harley 1, cne ne 24-2s-4w, dr 4910 ft. Wm. Aungle et al's Posey 1, cnw nw 8-1n-8w, td 5504 ft, D&A. Helmerich & Payne's Graham 1, csw sw ne 12-1n-5w, circ oil to kill gas. B. F. Lundy's Calmes 1, cnw sw se 35-1n-4w, dr 3878 ft. Penn State Oil Co.'s Cole 1, cw½ sw ne 21-2n-8w, dr 4391 ft. Chas. Newsom's Pfile 1, sw sw sw 1-2s-7w, woc 175 ft. Wm. Angle et al's Sid Lang 1, sw sw ne 24-1n-7w, dr 110 ft. G. L. Pace et al's Tah-su-dah 1, se nw sw 27-1s-9w, td 2138 ft.

TEXAS COUNTY — Cabot Carbon Co.'s Castro 1, cnw 19-3n-17ecm, pb. Missouri Valley Gas Corp's Fitzgerald 1, c sec 17-6n-14e cm, sd. Cabot Carbon Co.'s Calvert 1, c sec 14-3n-16ecm, dr 2643 ft.

TILLMAN COUNTY—I. T. I. O. Co.'s Hatler 1, csw ne 32-2s-17w, testing. Magnolia Pet. Co.'s Brown 1, csw se ne 21-3s-18w, dr 2950 ft.

WASHITA COUNTY—McWherter et al's Fee 1, sw sw sw 34-8n-19w, sd 1779 ft.

SOUTH TEXAS

SAN ANTONIO DISTRICT

ATASCOSA COUNTY—Helvetia Oil Co.'s Susie Pratt 2, F. de La Garza sur, testing in PB/TD 2432, td 3460. R. J. Roberts' W. Earl Rowe's J. M. Elder 1, Dan Brister sur No. 190, junked and abnd 3160 ft.

BASTROP COUNTY—Marts & Beavans' R. A. Harris 1, Timothy McKean sur, mim. Spokane Oklahoma Oil and Gas Co.'s Caldwell 2, Antonio Navarro sur, top Eagleford 2190 ft, dry and abnd 2412 ft.

BEXAR COUNTY—Algra Oil Co.'s Edward G. Peters 1, Miguel Gotari sur, ru w heavier rig, td 815 ft. Carle Chemical Co.'s Frank P. Carle 1, 343 ac tr 19 mi west San Antonio, di chalk 96 ft. J. O. Williams' C. Hoch Est., will start up, td 483 ft.

CALDWELL COUNTY—R. T. Belcher's Mrs. G. Moody 1, Solomon Seal sur, lcn cleared. J. R. Brinkley, Jr. Oil Co.'s W. F. Trammell 2, Robt. H. Hunter sur, acidized with 4000 gals, flowing by heads est 5 to 8 barrels per hr., TC 1900 lbs 7 in csg 1872 ft, td in sh 2035 ft. E. R. Cosby's W. H. Cosby 1, Maxwell sur, woc prep to dr plugs 1847 ft. W. E. Hosel et al's M. C. Driscoll 1, James Berry sur, prep to resume dr, td 1544 ft. J. O. Mack's B. Withers 1, W. House sur, drk. J. G. McKenzie's J. M. Pierce 1, Solomon Seal sur, sd 2060 ft. McNeil Pet. Corp.'s Will Clark 1, J. R. Miller sur, lcn only. Sherman Nelson's A. B. Etheridge 1, Thad Hunter sur, moved in lighter rig to wo in effort to comp in chalk, td 2180 ft (?) Stapper Pet. Co.'s E. Martin 1, A. Floyd sur, drk.

DIMMITT COUNTY — Paul C. Teas & Maryland Oil Corp.'s S. E. McKnight 1, sec 23, lcn. Wilcox Oil & Gas' Light Ranch 1, I&GN sur No. 527, dr 5020 ft.

EDWARDS COUNTY — Dan Auld's Mrs. Mamie Rigsby 1, GC&SF sur, lowering 8 inch casing to 3040 ft.

FRIO COUNTY—Amerada Pet. Co.'s Mrs. D. D. Harrigan 1, Salvador Flores sur, cleaning out 1100 ft, td 6290 ft.

GONZALES COUNTY — Canoe Creek Oil Co.'s W. L. Bolts 1, W. A. Matthews sur, wor.

GUADALUPE COUNTY—R. T. Belcher's J. T. Fulcher 1, Robt. Smith sur, set sur csg woc. J. Kenneth Blackmar et al's Cora and J. E. Mackey 1, James Hodges sur, dr 2210 ft. J. E. Clark's Knodel 1, Green Dewitt sur, td 1595 ft. Louis Crouch et al's Mary E. King 1, J. D. Clements sur, dr 1595 ft. Diamond Half Oil Co.'s E. Bibbs et al 1, Joel W. Robinson sur, pb, td 1370 ft, swabbing little oil and sw from Navarro, td 5510 ft. Felmont Oil Corp.'s Lizzie Schueneman 1, Green Dewitt sur, sp. Kennedy and Crowley's Gus Jahns 1, Jose K. Davis sur, sd 2507 ft. Dave T. Mulholland's T. W. Jahns 1, Jose K. Davis sur, dk and sd. V. G. Schimmel et al's Mrs. Wilhelmina Schneider 1, Jesus Cantu sur, set sur csg 28 ft, dr below. W. Scott Townsend's Tom Terrill 1, Jesus Cantu sur, moving in new boiler to dd, td 300 ft.

KERR COUNTY—S. W. Forrester's J. W. Bailey 1, A L. Starky sur, sd 1115 ft.

MEDINA COUNTY—J. H. Lynd & W. W. Fondren's J. H. Lynd 1, A. Smeller sur, D&A 1800 ft.

TRAVIS COUNTY—R. M. Kyle's W. D. Hunter 1, J. Burleson sur, sp.

ZAVALLA COUNTY—H. F. Wilcox's T. J. Gillam 1, GWT&T Ry. sur, dr 3280 ft.

CORPUS CHRISTI DISTRICT

ARANSAS COUNTY—Barnsdall Oil Co.'s Kate Edwards 1-A, Wm. Lewis sur, in sand, wait on 9⅝ in csg, high powered gas sand at 7548 ft.

BEE COUNTY—Butler & Turner's J. R. Scott 1, Jose Maria Uranga grant, ru to sp.

(see opposite page)
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Lonnie Glasscock's J. B. Ablinger 1, John Ryan sur, recovered all drill stem prep to clear hole to test to Yegua sand 5932 ft, td 5945 ft.

BROOKS COUNTY—Standard Oil Co. of Texas' Mestina Oil & Gas Co. 1, R. G. Salinas sur, coring sh 3075 ft; Mestina Oil & Gas Co. 6, R. G. Salinas gr, set 9⅝ in csg 1281 ft, woc, td 1293 ft.

CAMERON COUNTY—Stapper Pet. Corp.'s Port Isabell Irr. Co. 1, blk 17, Port Isabell Irr. Co. subd, dr 7630 ft.

DE WITT COUNTY—J. K. Davis Jr.'s & Ira L. Keith's Afflerbach 1, L. V. Criswell sur, set sur cas, woc.

GOLIAD COUNTY—Brown & Wheeler's J. R. Kauffman 1-G, P. Trevino sur, dr 4065 ft. Goliad Oil Co.'s S. E. Cole 1, Lot 33, Range 4, dr 3425 ft.

HIDALGO COUNTY—Daskam Bros.' Osca Daskam 2, por 45 of Daskam subd, coring 3820 ft.

JIM WELLS COUNTY—John Camp Prod. Co.'s J. W. Bird 1, Los Presenos de Abajo gr, waiting on more pipe. Magnolia Pet. Co. et al's A. A. Seelgson 7, Los Jaboncillos sur, drk. Tsesmelis & Reese's Martha Earhart 1, John Suggs sur, coring sandy sh, ran electric formation tester, sand 3095-3115 ft, showed 7½ ohms and 35 milli volts, td 4005 ft. Wellington Oil Co.'s Clara Driscoll Sevier 1, Abstract 545, woc, td 500 ft.

LIVE OAK COUNTY — Empire Fuel & Standard Co. of Texas' George West 1, blk B of George West subd, sp. R. H. Feltner's Sanger Ranch 2, GC&SF sur, spudding. Loma Oil Co.'s L. C. Anderson 1, J. Turner sur, D & A, top shells 1474 feet, td 1502 feet. F. D. Salter et al's I. W. Griffith 2, J. D. Osborn sur, dk, td 200 ft. Sam Wilson, Jr.'s Southwestern Life Insurance Co. 1, sec 57, Simmons subd, ru and wo on water.

NUECES COUNTY—I. J. Allen & Seaboard Oil Co.'s J. O. Chapman et al 4, sec 38, Laureles Farm Tracts, coring 6403 ft; J. O. Chapman et al 1-B, Romon de Ynojosa gr, D&A 7005 ft. Camp Prod. Co.'s C. Phillips Wardner, Tr. 1, Charles E. Stratton subd, flowing 40 to 50 bbls 49.3 gr oil ¼ in ch, td 6715 ft. Clarkwood Oil Co.'s H. B. Baldwin 1, blk 11, Russell Farm Lots drilling 4927 ft. Lonnie Glasscock's Kansas Life Insurance Co. 1, Luciano Rivers sur, dr 4390 ft. Heyser & Heard's A. J. Kosar 1, J. M. Cody sur, dr sh 4675 ft. Shell Pet. Co.'s State of Texas 1, Laguna Madre Bay, piling driven and sd. Taylor Pet. Co.'s J. V. Styles 1, Rowsey subd, ru. United Prod. Corp.'s W. H. Harvey 1, Garcia sur, dr 8865 ft. Wellington Oil Co.'s & Seaboard Oil Corp.'s L. M. Duggar 1, George H. Pauls subd, testing, in final stages of completion.

SAN PATRICIO COUNTY — Danrey Oil Co.'s Jean Davis 1, Wm. Boyd sur, mim. Phillips Pet. Co.'s B. E. Ivey 1, sec K, mim. Wheelock & Collins' Inez Willis 1, blk "E", Gregory subd, td 6521 ft, ran electric formation tester, may abandon.

VICTORIA COUNTY—Magnolia Pet. Co.'s Willis Beck 1, TNO RR sur, ru to co 4812 ft.

WILLACY COUNTY—Ruez-Morton, Inc.'s Francisco Armendiaz 1, Little sh 4, drk. Shell Pet. Co.'s Yturria Land & C Co 1, San Juan de Carritos gr, drilling 9234 ft.

LAREDO DISTRICT

DUVAL COUNTY—Argo Oil Co. & John Clopton's Smith-Corkill Est. 4, dry and abnd, top Gov't Wells 2795 ft, td 2806 ft. A. J. Brinkoeter's P. Garza de Rodriguez 2, sur 212, dr 2030 ft. Clark & Cowden Dr. Corp.'s J. M. Richardson 3, sur 5, comp for small gas well from Cole sand thru perf 1680-1700 ft, td 3735 ft. Hiawatha Oil & Gas Co.'s Southland Life Insurance Co. 2, Santos Flores Gr, ran electric formation tester, sd for orders, pb and perf in sand 5672-91 ft, td 5939 ft. Highland Oil Co.'s A. Faris 1, Santos Flores Gr, dr 1600 ft. Humble Oil & Ref. Co.'s Roos Brothers 1, sur 119, dr 140 ft. George Parr Oil Co.'s F. Vaello Puig 1, San Andres Gr, set sur csg, woc. Penn-Palangana Oil Co. et al's C. K. Gravis 1, sec 254, bldg drk. Reynolds & Richardson's D. Ruiz Est. 1, sec 125, dr 3000 ft, Gov't Wells, Pettus and Mirando sands showed salt water. Smith & Storey's Smith 1, blk 9, drk. Trahan & Tuttle's J. C. Megerle 1, sur 245, dr 735 ft. George V. Viteri et al's Emilio E. Cadena 1, J. M. Jinojosa Gr, lot 6, set 10 in csg, woc, 1000 ft td.

JIM HOGG COUNTY—Cole Pet. Co.'s Yeager Ranch 1, sur 452, abnd 3258 ft. Nordan & Morris' W. H. & R. T. Badger 1, sur 640, lcn.

McMULLEN COUNTY — Big Rock Oil Corp.'s Henry R. Martin 1, N. Weiting sur No. 6, abnd 525 ft. H. K. Boysen's J. E. Murphy 1, J. E. Murphy sur, dr 1902 ft. W. P. Howard's B. C. Claunch 8, M. Hely sur, lcn. Howell Oil Co.'s J. H. Martin Hrs 1, sur 213, dr 1520 ft. Edwin M. Jones' Harry Ezzell 3, Thos. Adams sur, td 1265 ft. J. T. Lanier's E. R. Hagist 1, sur 481, dr below sur csg. L. J. Snyder et al's B. C. Claunch 1, M. Hely sur, test on pump, show considerable oil and very little sw, sanded up, prep to pull rods

and re-work, td 1058 ft. John H. Clopton et al's Dionicio Tijerina 4, por 80, sd for heavier rig td 1630 ft. Cook, Maris, Arnold's Starr County Cattle Co. 2, Cook, Maris, Arnold sur, dr 1845 ft. K. E. Merren's Starr County Cattle Co. 1-A, por 89, dr 2940 ft. Henry Mode et al's Kelsey Bass 1, blk 7, Kelsey Bass subd, drilling. Moss & Heard's S. B. Ricaby 2, por 38 J. of Camargo, coring sand 1705-61 ft, top gassy, rest dry, td 1772 ft. F. P. Schwab & Fred Foster's Antioco Munoz et al 1, Cuevitas field, sp. Transwestern Oil Co. et al's 2, T. B. Slick Est., sec 527, dr 5585 ft.

WEBB COUNTY—Mills Bennett Prod. Co.'s M. D. Slator 2, J. V. Borrego Gr, dry and abnd 3020 ft. Bolling & Coffey's A. Villareal 1, blk 17, sur 768, dr 1235 ft. Kepley Prod. Co.'s W. C. Billings, 1, sur 6, coring 2050 ft. LuTex Oil Co.'s Lone Star Con. Co. 1-A, S. S. and B. sub, fshg 2875 ft. J. W. Magee's E. Garcia 1, Henry James subd, sp, dr 40 ft. Locke Purnell's Rosa Benavides 1, sur 677, set sur csg.

ZAPATA COUNTY—W. C. Bob's J. M. Martinez 2, W. R. Duke sub, dry and abnd 722 ft. H. Q. Lewis' S. Benavides 1, Villa Grant, blk 39, dr 1800 ft. Lundell Prod. Corp.'s I. Ramirez 1, blk 25, dr 1200 ft. Sylvan Price's Maryland Trust Estate 1-C, sur 314, coring 2550 ft. Westheimer & Daube's E. Lopez 1, sur 288, pits dug, mim.

EAST TEXAS BORDER COUNTIES

CASS COUNTY—McAlester Fuel Co.'s J. J. Dooley 1, Calloway Davis sur, elev 246 ft, Georgetown lime 3690 to 4401 ft, top Paluxy 4530 ft, dr 4980 ft, shale and lime. Magnolia's Harper & Thatcher 1, Jacob Carsner sur, pb and set csg, woc, old td 6675 ft. United's J. W. Land 1, Robt. Potter sur, dr 7052 ft.

MARION COUNTY—Ark. La. Gas Co.'s C. C. Braden 1, Thos. Hanson sur, dr 3210 ft. Laura McIntosh 1, Wm. Edmonson sur, elev 272 ft, claim so&g 6654-65 ft, arr core again, td 6665 ft (basal Glen Rose). The Hunter Co.'s E. W. Fonda 1, A de Los Santos Coy sur, slight so in core 5990-6009 ft, coring 6029 ft.

PANOLA COUNTY—Danciger O&R Co.'s Alfred Bissell sur, spd and sd. R. B. Dearing et al's Wooten Est. 1, Winny Mann sur, spd set surf csg. Glassell & Glassell's Pierce & Chesbro 1, Julia Soape sur, mim. Magnolia Pet. Co.'s E. A. Hull 2, Thos. Applewhite sur, elev 222 ft, dr 5592 ft. Socogee Oil Co.'s Trosper 1, Larkin Smith sur, 10-in csg 45 ft, dr chalk 1800 ft.

SHELBY COUNTY—Wm. Redditt et al's Pickering Lbr. Co. 1, Stephen English sur, arr deepen 2165 ft. H. A. Stebbinger et al's Pickering Lbr. Co. 2, A. Hanson sur, setting 5 3/16 in csg, td 5099 ft. Shelby Oil Co.'s Windham 2, A. H. English sur, rur (450 ft s of No. 1).

EAST TEXAS

ANDERSON COUNTY—Tom F. Hunter, Jack Frazier & American Liberty Oil Co.'s G. E. Gage 1 (160-ac), C. B. Gilbert sur, 2 mi se Blackfoot, elev 384 ft, Pecan chalk 2860-3000 ft, Austin chalk 3987-4380 ft, top Woodbine 4782 ft, top Red Beds 4989 ft, top Georgetown lime 5681 ft, top Paluxy series 6758 ft, top 1st Glen Rose 7029 ft, anhydrite stringer 8085-8120 ft, massive anhydrite 8415-8523 ft, coring 9030 ft. Roeser-Pendleton, Inc.'s V. W. Bowyer 3 (200-ac), E. Ritter sur, Cayuga field Trinity test, elev 317 ft, Pecan chalk 2235-2455 ft, Austin chalk 3225-3650 ft, top Woodbine series 3991 ft, top Georgetown lime 4749 ft, dr 5630 ft. Tide Water Associated-Seaboard Oil Corp.'s Monnig Bros. 7 (3806-82-ac), S. Sanchez sur No. 1-11, Long Lake field Trinity test, elev 233 ft, Pecan chalk 3565-3766 ft, Austin chalk 4687-4957 ft, top Woodbine sand 5273 ft, top Georgetown lime 5904 ft, top Paluxy 7010 ft, top 1st Glen Rose 7205 ft, top 1st anhydrite 8333 ft, massive anhydrite 8643-8748 ft, coring lower Glen Rose 9119 ft.

BOWIE COUNTY—Ferguson & Hill's A. Y. Breckenridge 1 (412-ac), Nancy Dycus sur, 4 mi w Texarkana, top Annona chalk 1308 ft, top Blossom sand 2063 ft, sd 2605 ft. Sutton & Hawkins' N. M. McDuffey-Harris 1 (389.45-ac), John Ball sur, 3 mi se New Boston, elev 333 ft, top Annona chalk 1472 ft, top Georgetown lime 2847 ft, top Paluxy series 3350 ft, top anhydrite stringer 4495 ft, top massive anhydrite 4640 ft and base 4825 ft, pb fr 4924 ft to 4724 ft, set whipstock 4767 ft. Mrs. S. O. Thompson & Jaffe's C. W. Rosemond 1 (425¼-ac), Jefferson Milam sur, 3 mi sw Red Water, dr 3725 ft.

CHEROKEE COUNTY—Stoco Oil Co.'s E. B. Parks 1 (17-2/3-ac), J. T. Cook sur, 4 mi sw of Rusk, elev 417 ft, dr 2900 ft. John G. Mayo et al's J. L. Bailey 1 (248-ac), J. H. Russell sur, 2½ mi w Lone Star, elev 361 ft, Pecan chalk 3610-4030 ft, Austin chalk 4435-4563 ft, top Woodbine 4563 ft, dry and abd 4582 ft.

DALLAS COUNTY—Mauldin Oil Co.'s W. E. Howell 1 (107.7-ac), S. Layton sur, sp and sd.

DELTO COUNTY—F. J. Estes et al's W. S. McGee 1 (207-ac), J. G. Oliver sur, 2 mi sw Klondike, elev 449 ft, top Georgetown lime 3305 ft, sd 3981 ft.

FALLS COUNTY—J. Edward Mills et al's Sam Grucholski 1 (40-ac), Dennis Herold

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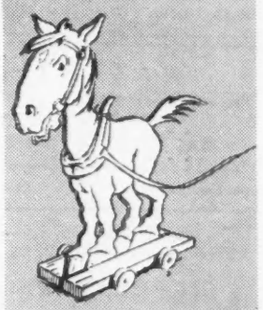

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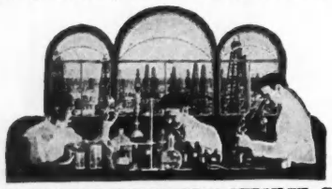

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League, 5 mi sw Kosse, elev 521 ft, top Edwards lime 3867 ft, top upper Glen Rose 4074 ft, td 5526 ft in lower Glen Rose, cem 5-3/16-in pipe 5374 ft to test Oolitic lime.

FREESTONE COUNTY—C. F. Lytle et al's Roy Simmons 1 (28-83-ac), R. B. Longbotham sur, ½ mi s Worthan, Trinity test for depleted field, dr 3820 ft. L. R. Stroud & C. A. Buzzard's Sneed 1, R. D. Sloan sur, 6 mi ne Fairfield, dr 345 ft.

GRAYSON COUNTY—Olson Drl. Co., Jas. H. Gardner, Broswood Oil Co. et al's D. R. Utiger 1 (160-ac), P. P. Cady sur, 5 mi nw Denison, Preston Anticline, elev 722 ft, fsh drill pipe, td 5751 ft.

HENDERSON COUNTY — Humble, Tide Water Associated & Seaboard Oil Corp.'s McElreath-Suggett 1-C (149-ac), W. P. Wyche sur, 1½ mi nw Opelika, elev 394 ft, Pecan chalk 2580-2730 ft, Austin chalk 3710-4110 ft, top Woodbine series 4137 ft, top sand 4204 ft, top Georgetown lime 4950 ft, top Paluxy 6006 ft, top 1st Glen Rose 6270 ft, top 1st anyhydrite stringer 6930 ft, oil pay 7185-7195 ft, cemented 4½-in stuck drill pipe 7160 ft, used 3000 gals acid to clear clogged channels in rock bit to resume flow of 37½ gravity oil. Wm. McDougall, Tr. et al's Trinity Farm Securities Co. (R. M. Manning) 1 (200-ac), H&TC Ry sur, 4 mi s Malakoff, lcn.

HOPKINS COUNTY—Robt. D. Goodrich et al's R. A. Logan 1 (87½-ac), A. O. Wetmore sur, 1½ mi sw Sulphur Bluff field, elev 414 ft, Pecan chalk 1430-1500 ft, top Woodbine 3124 ft, cut fault 3155 ft, top Georgetown lime 3696 ft, top Paluxy series 4523 ft, tested salt water 4553-4583 ft, dry and abd. Carpenter Oil Corp.'s C. D. Gillis 1, Jas L. Worsham sur, rur. W. P. Chandler et al's J. M. Hargroves 1 (20-ac), G. Lincecum sur, 10 mi sw Sulphur Bluff, lcn abd. H. & W. Development Co. (V. A. Hughes-S. A. Williams)'s Pan-American Life 1 (136½-ac), 6 mi se Brasheer, sp.

HOUSTON COUNTY — American Liberty Oil Co. et al's J. A. Bean 1 (61-02-ac), Green Evans sur, nw Grapeland, elev 489 ft, top broken Pecan chalk 4623 ft, base chalk 4899 ft, Austin chalk 5614-5938 ft, top Woodbine series 6018 ft, pb fr 6257 ft and perf cas 6018-36 ft, completed as gas and distillate well. W. L. Moody 1 (55-ac), S. C. Parker sur, 2½ mi nw Grapeland, rur. E. R. Mount, Branch et al's Dr. P. S. Griffiths 1 (136-ac), Frank Johnson sur, 3 mi sw Crockett, sd 1740 ft. Placid Oil Co.-Shell Pet. Corp.'s J. E. Elliott 1 (200-ac), J. M. Procella sur, 6 mi ne Grapeland, elev 371 ft, Pecan chalk 4590-4955 ft, Austin chalk 5587-5869 ft, top Woodbine 5870-79 ft, tested show oil, gas and water, dd to 6225 ft, cem 5½-in cas 5950 ft to gun-perf. Ridgeway & F. B. Jackson Jr. et al's H. F. Moore 2 (53-ac), H. Masters sur, 2 mi se Crockett, elev 337 ft, dk. C. & G. Oil Co.-Duval Williams' E. M. Young 1 (34-ac), J. J. Thomas sur, near Lovelady, dr 1700 ft.

HUNT COUNTY—Penn Oil Corp., Elmer S. & Fox Wood's A. B. Parrish 1 (200-ac), Nancy Danley sur, 7 mi ne Lone Oak, elev 597 ft, Pecan chalk 1387-1477 ft, Austin chalk 2676-2900 ft, top Georgetown lime 4369 ft, dr 5710 ft. The Texola Land Corp.'s J. M. Goin 1 (250-ac), Jas. Merrick sur, 2 mi sw Wolke City, sp and sd. Stanolind O. & G. Co. et al's Jessie P. Hawkes 1 (110-ac), Robt. Ragsdale sur, 1½ mi w Campbell, Trinity test, elev 566 ft, top Pecan 1150 ft, cut fault 1275 ft, top Woodbine 2880 ft, dr 3410 ft.

KAUFMAN COUNTY—J. M. Scott & J. B. Woodside's Wood & Temple Nash 1 (80-ac), Juan Cortez sur, 1 mi e Scurry, elev 401 ft, Gober chalk 1300-1400 ft, dr 1825 ft.

LAMAR COUNTY—Cooper Bros. & Sallee's L. P. Hayes 1 (100-ac), Luke Roberts sur, 1 mi w Deport, chalk 85-340 ft, 1st Red beds 1786 ft, dr 1950 ft.

LIMESTONE COUNTY—Pure Oil Co.'s W. B. Kendrick 16-T (96-ac), 3 mi w Mexia, Mexia field Trinity test, elev 508 ft, Austin chalk 2210-2522 ft, top Woodbine 2896 ft, lost hole 2984 ft, pb to 2315 ft, dr new hole 2461 ft. A. W. Phillips & J. Johnson's E. M. Wright 1 (136½-ac), A. Varella-M. Herrin sur, 4 mi ne Groesbeck, elev 415 ft, Pecan chalk 2450-2520 ft, Austin chalk 2720-3003 ft, sd 3695 ft.

RED RIVER COUNTY — Carpenter Oil Corp.'s R. E. Anderson 1 (100-ac), S. W. Sims sur, 3 mi n Clarkesville, elev 459 ft, top Red beds 1250 ft, top Paluxy series 1845 ft, top anhydrite 2565 ft, top Glen Rose 2765 ft, sd 3019 ft to deepen.

RUSK COUNTY—John G. Mayo et al's Harrison-S. C. Sanford 1 (161-ac), Wm. A. Corder sur, 10 mi e Mount Enterprise, Trinity test, elev 252 ft. lcn.

UPSHUR COUNTY — Frank Linbart & Kightlinger's F. W. Fair 1 (100-ac), H. W. Augustine sur, 4 mi se Big Sandy, sp and sd.

VAN ZANDT COUNTY—Humble O. & R. Co.'s L. K. Riggs 1 (74.2-ac), Wm. Daniel sur, ne edge Van field, elev 457 ft, Pecan chalk 1925-2040 ft, Austin chalk 2785-3022 ft, top Woodbine 3230 ft, top Georgetown lime 3725 ft, top Paluxy series 4645 ft, showed water, td 4664 ft, crooked hole, pb to 3946 ft, set whipstock. Spratt Oil Co. (was Stroud & E. N. Lowe's) P. L. McNeill 1 (104-ac), J. W. Guest sur, 4 mi n Ben Wheeler, elev 510 ft, sd 684 ft.

WOOD COUNTY—B. F. Phillips et al's Mrs. L. E. Pritchard 1 (50-ac), T. Craddock sur, 4 mi s Winnsboro, elev 542 ft, Pecan chalk 3015-3260 ft, top Wolfe City sand 3264 ft, Austin chalk 4516-4606 ft, top Woodbine series 5080 ft, water sand 5107-26 ft, td 5164 ft, dry and abd.

MONTANA

JUDITH BASIN COUNTY—Fletcher P. Hunt's Hobson 3, nw se ne 30-14n-15e, preparing to run pipe to 1335 ft to shut off caving formations.

PONDERA COUNTY—Kirk Oil Co.'s Kellog 1, se nw ne 31-28n-4w, dr 2285 ft, with so at 2270 ft.

YELLOWSTONE COUNTY — Broadview Dome Oil Co.'s Halbritter-Stiltenberger 1, se ne 18-3n-23w, rur.

WYOMING

CARBON COUNTY—Italo Petroleum Corporation of California's Union Pacific 1, sw sw sw 19-20n-83w, formerly General Petroleum Corporation's well, preparing to clean out and test.

CONVERSE COUNTY—Chadron-Osage Oil Co.'s State 1, sw sw sw 16-32n-69w, dr 3350 ft with sg. Elbe Oil Land Development Co. of California's Benham 1, nw ne 5-31n-70w, mim and rotary equipment. Wyoming Southern Oil Co.'s Jennie Evert 1, nwc sw 26-32n-69w, driving 12½ in surface csg. Wyoming Southern's Salisbury 2, nec nw se 17-32n-69w, setting 6⅝ in csg at 453 ft on top of gas sand, showing for about 10,000,000 cu ft gas daily.

NIOBRARA COUNTY—Riggs Drilling Co.'s A. A. Spaugh 1, se sw sw 32-34s-65w, abd at 1755 ft.

PARK COUNTY—General Petroleum Corporation's Government 1, nw nw nw 33-47n-100w, coring in saturated Tensleep formation at 5989 ft. Top of formation at 5899 ft with top of saturation at 5903 ft.

COLORADO

LINCOLN COUNTY—Consolidated Smelting & Metals Corporation's Hancock 1, ne ne sw 7-17s-52w, dr 2255 ft.

MOFFAT COUNTY—Anderson-Kerr Drilling Co. & Phillips Petroleum Co.'s Government 1, cse se 19-9n-99w, dr 1785 ft after cementing 12½ in csg at 1464 ft.

PARK COUNTY—South Park Oil Co.'s Lemarr 1, ne ne se 34-11s-75w, pulling 8¼ in csg for production test in Florence shale at 4060-4567 ft, td at 4567 ft.

RIO BLANCO COUNTY—Texas Co. & California Co.'s Freeman 1, cse se 27-3n-94w, location.

UTAH

GRAND COUNTY—Cane Creek Oil Co.'s Government 1, nw sw 31-26n-21e, mim. Columbia Crude Corporation's Rath-Government 1, ne sw 12-25s-20e, dr oil sand at 2132 ft and preparing to test. Utah-Southern Oil Co.'s Hyde-Government 1, s nw nw 32-22s-20e, moving in heavier rotary to deepen from 6715 ft.

EMERY COUNTY—California Co. & Continental Oil Co.'s Unit 1-A, nw nw 27-23s-11e, dr 2768 ft.

Draw Works

The National Supply Company, Toledo, Ohio, recently issued bulletin No. 139, describing its No. 27-7½-MB draw works, a unit designed for average drilling conditions.

Welders and Generators

Westinghouse Electric and Manufacturing Company, Pittsburgh, Pa., recently issued descriptive data No. 26-120, describing its "Flexarc Motor Driven Welders and Bare Generators," single operator, 200, 300 and 400 amperes, 25-50 cycles and 60 cycles, DC drive and belted or coupled generators.

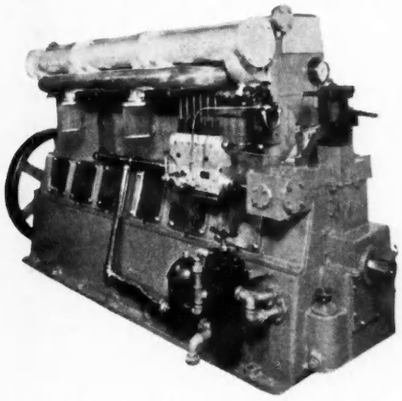
San Jacinto Inn
located at
THE HISTORICAL
San Jacinto Battle Grounds
You'll enjoy our delicious
Sea Food and Chicken Dinners
Music and Dancing . . . Open every day except Monday
Noon 'til Midnight
A Real Texas Welcome Awaits You

NEW PRODUCTS FOR THE FIELD
Machinery • Tools • Catalogs • Books

DIESEL ENGINE
The Western Engine Corporation

The Western Engine Corporation, 1000 Alhambra Avenue, Los Angeles, announces production of its model DS series of Diesel engines that are particularly adaptable to oil field operations when powering draw works, slush pumps or generators. Features of these engines are total enclosure of all moving parts, full-pressure lubrication, aluminum-alloy pistons and aluminum cover plates for rocker-arm boxes, push rod and camshaft drives.

The DS series are built in 2, 3, 4 and 6-cylinder sizes, and at 750 rpm develops in excess of 25 horsepower per cylinder. The bore is 7¼-inch, stroke



Western Engine Corporation Type DS-6 Diesel.

8-inch. Bosch fuel injection system, Pierce variable speed governor, Cuno lubricating oil filter and cooler are standard equipment. Starting is by air through a distributor type valve driven off the end of the camshaft. Air lines to each cylinder are enclosed. All accessories, such as governor, lubricating-oil pump, fuel pump, and camshaft are driven from a common set of specially cut, ground and hardened gears at one end.

The engines are readily convertible to natural gas with minimum cost. It is only necessary to remove the Bosch pump, injectors, and air intake manifold. In their place is put a magneto, spark plugs and gas carburetor. The compression ratio is lowered by inserting a plate between the heads and cylinder block, and adjusting the length of the push-rods.

HEAVY DUTY BEARINGS
Fafnir Bearing Company

Fafnir Bearing Company, New Britain, Conn., has developed a complete series of heavy-duty industrial roller bearings, made in an extended range of almost 100 sizes with rated capacities ranging from 10,000 to 500,000 pounds. A choice of 18 different bores is offered in bearings of this type. These bearings feature a large number of solid rolls which are incorporated in the cage assembly, making for increased load capacity. All parts of these bearings are ground to extremely close tolerances.

Another new development of this company is a heavy-duty pillow block for roller bearings involving end thrust in addition to radial load. A separate, heavy-duty ball bearing to take the thrust loads is included as an integral part of the assembly. Thus all of the radial load is taken by the roller bearing, while all forces tending to displace the shaft axially are borne by the ball bearing. A spherical housing construction provides self-alignment.

ASBESTOS SHEET PACKING
The B. F. Goodrich Company

The B. F. Goodrich Company, Akron, Ohio, has recently announced a new sulphur-free, Neoprene-bonded, compressed asbestos sheet packing, known as Prenite 20M.

This new packing, it is claimed, offers increased resistance to oil as well as to such refrigerants as Freon, Methyl-Chloride and sulphur-dioxide, and absence of sulphur in its composition makes for a packing that will not corrode metal parts. The packing is available in 50 x 50-inch sheets in 1/32-, 1/64- and 1/16-inch thicknesses.

PIPE-COATING HOLIDAY DETECTOR
Crutcher-Rolfs-Cummings

Crutcher-Rolfs-Cummings, Esperson Building, Houston, is marketing a pipe-coating holiday detector of improved efficiency, following study of the various conditions under which a holiday detector must operate.

The device is portable, weighing only 15 pounds with batteries enclosed in cabinet. The old weight was 70 pounds. It is operated from dry cells, six dry cells in all. The high-tension voltage output is 50 percent higher than the old type of detector, giving a longer spark and indicating coating holidays more readily. The high-tension circuit in the coil-box is highly insulated and high-tension insulators are used throughout, thus eliminating considerable current leakage and thereby increasing the efficiency. The pipe electrode is lighter and stronger.

OIL SUCTION AND DISCHARGE HOSE
The B. F. Goodrich Company

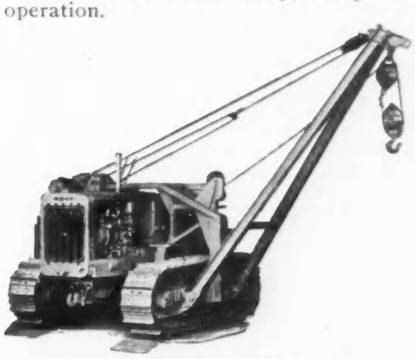
The B. F. Goodrich Company, Akron, Ohio, is introducing a new oil suction and discharge hose incorporating aluminum wire and fittings. This hose, which is known as Type 200, was developed for those users who prefer the aluminum construction because of its lighter weight and non-corrosive qualities.

Type 200 oil hose is a rough bore construction, having a flat internal aluminum wire and a flat secondary aluminum wire. To compensate for the reduction in bursting strength, which occurs with the substitution of aluminum wire for steel, additional plies of fabric are added to the carcass. The hose is made with a heavy rubber cover which, besides being oil-resisting, affords maximum resistance to abrasion.

All fittings supplied with this hose are of aluminum and to insure an absolutely leak-proof joint nipples and flanges are cast as a single piece. However, fittings of the screw type can be furnished if the user so desires. The hose is available in sizes from 4 to 10 inches.

TRACKSON PIPE LAYERS
Trackson Company

The Trackson Company, Milwaukee, Wis., announce a new line of Trackson Pipe Layers available on "Caterpillar" Tractor Models "Thirty," RD4, R5, RD6, "Fifty" and RD7. The tractors are wide gauge, rigid frame models equipped with heat-treated grouser track shoes. The pipe layers are shipped complete from the Trackson factory, ready for operation.



Trackson Model PRD-6 Pipe Layer

According to the Trackson Company maximum safety of operation is assured by full power control of the boom and load lines in raising or lowering.

A separate clutch and brake on the load-line drum permits quick release of the load or lowering against the brake. The usual method of operation, and the safest, is to raise and lower under power, thus giving the driver full and constant control of the load.

All levers are convenient to the driver and operate with a minimum of throw and effort. The frame structure is low, giving him full visibility as he works. Accessibility to the tractor mechanism is in no way impaired, and the entire structure may easily be removed, if desired, when the tractor is to be used extensively for other work.

A special transmission and cross-drive mechanism gives a choice of three speeds in either direction on both drums. The boom and load lines can be raised or lowered independently or together. Direction of rotation on both drums is controlled by a single lever. The pipe layer mechanism is driven from the rear power take-off of the tractor through a separate clutch so that the pipe layer mechanism may be disengaged when not being used.

The main frame of the pipe layer is an all welded integral unit substantially attached to the tractor frame. The boom is built of heavy H-beams and pivots on replaceable steel bushings. A coil spring bumper stop prevents overthrow of the boom in raising and keeps it from whipping when carried in the vertical position.

This Week with the Industry's EQUIPMENT SUPPLIERS

C. L. Forcum Rocky Mountain Representative for Rector

Rector Well Equipment Company, Fort Worth, announces the appointment of C. L. Forcum as Rocky Mountain district representative, with headquarters at Casper, Wyoming. He formerly was connected with Oil Well Supply Company, and came to the Rocky Mountain country from Dallas, Texas.

C. L. FORCUM
Representing Rector Well Equipment Company in the Rocky Mountain area.

Dan O'Shea, Advertising Head For Wheatley, Is Advanced

Dan O'Shea, advertising and office manager of Wheatley Brothers, Tulsa, has been elected vice president of the company. Going to Tulsa a year and a half ago, after shop training in the Wheatley plant in Kansas City, O'Shea developed an aggressive advertising campaign for Wheatley pumps and valves, which contributed to the 35 percent increase in sales. He remains a director of the company.

New General Electric Building Started in Los Angeles

General Electric Company, Schenectady, New York, announces construction of a new $700,000 General Electric building at Los Angeles. The design and construction of the building will be under the supervision of the General Electric Realty Corporation. It is designed to contain six stories and basement, three stories of which are planned to be completed for occupancy by September.

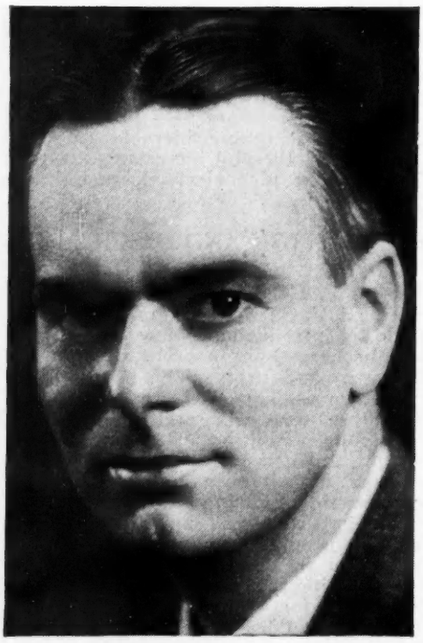
The new structure will occupy approximately a city block in the downtown industrial section of Los Angeles and will contain 250,000 square feet of floor space. Built of reinforced concrete it will house the offices, warehouse, and display rooms of the General Electric Company, G-E Supply Corporation, G-E Contracts Corporation, and G-E Merchandise Department. It will contain one passenger and two freight elevators and a three-ton electric traveling crane for use in the warehouse section of the building. Heat for the structure will be furnished by electricity.

Personnel Changes at Shand & Jurs Company

Shand & Jurs Company, Los Angeles, announces changes in personnel of several of its offices. Ralph F. Ley has been appointed manager of the eastern division with headquarters in New York. A branch office has been opened in Houston with Joseph Z. Hertzler in charge, and stocks have been established at this point. R. M. Young, general manager of the company, has just returned to the Berkeley factory from a visit to the New York, Pittsburgh, St. Louis and Chicago offices.

Our Error

Friends of Franklin P. Clark probably wondered at the remarkable change in his appearance as revealed by the photograph which accompanied announcement on this page last week of his advancement in the organization of Wickwire Spencer Steel Company. With apologies for a mechanical error, the right picture is here produced.

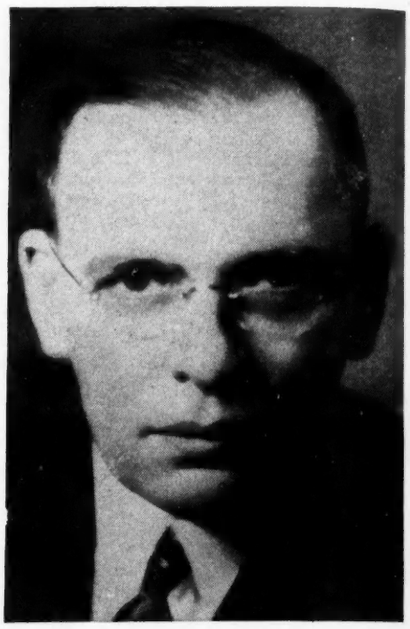


FRANKLIN P. CLARK
Representing Wickwire Spencer Steel Company at Buffalo.

G. H. Bucher Elected to Westinghouse Board

G. H. Bucher, executive vice president of Westinghouse Electric and Manufacturing Company and president of Westinghouse Electric International Company, was elected a member of the board of directors of the former at the recent annual meeting of stockholders of the company at East Pittsburgh, Pennsylvania. David K. E. Bruce, Paul D. Cravath and Marshall Field were re-elected directors.

After graduating from Pratt Institute, Brooklyn, in engineering, Bucher joined Westinghouse Electric and Manufacturing Company at East Pittsburgh as a graduate student. In 1911 he was transferred to the export department at New York, and in 1920 was appointed assistant to the general manager of Westinghouse Electric International Company; in 1921 he was advanced to assistant general manager; in 1932 to vice president and general manager, and in 1934 he was elected president and general manager of the company. In 1935 he was elected vice president of the parent company, and in 1936 advanced to the position of executive vice president.



G. H. BUCHER
Elected a director of Westinghouse Electric and Manufacturing Company.

It was announced that orders booked amounting to $74,242,584 for the three months ending March 31, 1937, were the highest for any quarter on record and unfilled orders for the same period were the highest since 1923. Net income per share of stock amounted to $2 for the quarter.

International Supply Company Opens New Stores

International Supply Company, Tulsa, announces the appointment of R. L. Neal and D. H. Collins, district manager and salesmen respectively of a new branch store opened in the Bitting Building, Wichita, Kansas. R. T. Cheney is manager of the new store at Great Bend, Kansas. G. E. Ponder is manager of the new store at Odessa, Texas.

Timken Appoints Steel and Tube District Managers

The Timken Roller Bearing Company, Canton, Ohio, announces it has appointed as district sales managers for the steel and tube division, who will be in charge of the steel sales:

W. F. Anderson, St. Louis, Missouri; M. C. Bellamy, Seattle, Washington; G. W. Curtis, Milwaukee, Wisconsin; H. V. Fleming, Birmingham, Alabama; B. E. Keifer, Cincinnati, Ohio; H. D. Robb, Pittsburgh, Pennsylvania, and B. M. Tinlin, Huntington, West Virginia.

In addition to this enlarged service, specially-trained metallurgists and the complete facilities of the Timken laboratories are available to aid in solving special steel problems.

Stores Opened by United Supply & Manufacturing Co.

United Supply & Manufacturing Company, Tulsa, has announced the opening of new stores at Chase, Kansas, Houston and Odessa, Texas, in charge of E. R. Will, C. M. Holland and J. O. Mayfield, respectively.

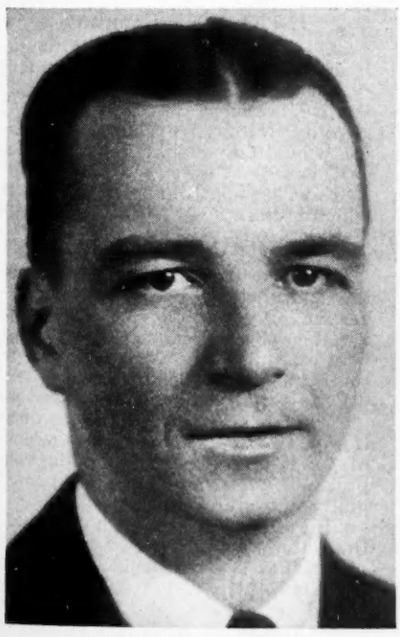
Houston Slush Pump Repair Company Increases Sales Force

Houston Slush Pump Repair Company, Houston, has expanded the operations of its tool service division with the recent addition of three salesmen. G. E. Cannon, formerly with C. & A. Specialty Company of Corpus Christi, will handle the Corpus Christi territory. Tex L. Stallings has been assigned to the Houston territory, and Pat G. Fraley will cover the East Texas oil fields with headquarters at Henderson.

Knipfel Transferred to Kansas by Waukesha

Waukesha Motor Company, Waukesha, Wisconsin, announces transfer of George C. Knipfel from the Mid-Continent office at Tulsa, to cover the Kansas territory as sales representative. Although working out of the Mid-Continent office, his headquarters will be in Wichita, Kansas.

Knipfel has been with the Waukesha Motor Company 12 years, 10 of which were spent in the home office at Waukesha, and 2 years at Tulsa.



GEORGE C. KNIPFEL
Kansas representative, Waukesha Motor Company.

Cores ready to be placed in Polarity Recording Instrument.

Paul Cavins Touring Texas and Oklahoma

Paul Cavins, manager of The Cavins Company, Long Beach, California, and John Mulcahy, the company's agent for the San Joaquin Valley fields, are on an extended business tour through Texas and Oklahoma. Spending 30 days on the trip. They are studying operations in Gulf Coast and Mid-Continent fields, inspecting company branches, and making numerous field trips with its representatives. They will visit the company's branches at Houston, Kilgore, Pampa and Odessa, Texas; and Oklahoma City, Oklahoma.

Case Appoints A. R. Thomas West Coast Distributor

The J. I. Case Company, Racine, Wis., through its West Coast manager, W. F. Carey, has announced appointment of A. R. Thomas as exclusive distributor for the western oil fields of J. I. Case oil well pumping engines. Thomas, formerly connected with Emsco Derrick & Equipment Company, will make his headquarters at the J. I. Case factory branch at 819 Mateo Street, Los Angeles.

Laboratory for Orientation of Cores Opened by Sperry-Sun

Sperry-Sun Well Surveying Company, Philadelphia, has opened a laboratory at 549 East Bixby Road, Long Beach, California, for the orientation of cores and determining the dip and strike of any intersecting bedding plane. The method used is covered by U. S. Patent No. 1,792,839 and several pending applications.

In the past it has been customary to obtain samples from the earths strata by means of core drills and to orient the core or determine its original position by orienting the core barrel out of the core hole or by attaching gyroscopic and magnetic compasses to the core barrel or other methods.

With the Sperry-Sun method sets of not less than three or more than five, preferably fresh cores with visible indications of the bedding plane obtained from within a range of depth of 30 to 50 feet, carefully packed to avoid breakage and accompanied with a descriptive letter, are sent in to the laboratory for analysis and a comprehensive confidential report is delivered to the customer.

This method of orientation of cores has been applied to cores from all sections of the United States and it has been found that satisfactory determinations have been made in over 80 percent of the cores submitted.

L. W. Stahl Joins Emsco Organization

L. W. Stahl has recently joined Emsco Derrick & Equipment Company where he will head up a new department for the development of new rotary drilling equipment.

New Electric Welding Process Announced by Osage Metal

Osage Metal Company, Oklahoma City, announces a new electric application of tungsten carbide for hard surfacing and hand setting drilling bits. The time saving, cost cutting and increased efficiency features have been thoroughly tested by practical use, according to officials.

A 400 amp. electric welding machine used in the electric process will cost approximately 12 cents per hour to operate. In the electric method a controlled electric arc permits continuous welding with no waiting for the metal to cool.

In the new method an indirect arc is used which gives a heat of great intensity without burning or oxidizing the metals being compounded into a cutting tool.

Homer J. Forsythe, General Manager Hyatt Bearings, Dead

Homer J. Forsythe, general manager of Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey, died after an emergency operation while on a visit to Pinehurst, North Carolina, on April 29.

From an executive position with the E. I. du Pont de Nemours Company in Wilmington, Forsythe joined Hyatt Roller Bearing Company in 1921 as assistant general manager, and in 1922 was appointed general manager. He was a director of the National Association of Manufacturers, and of the National State Bank of Newark.

Squeaks from the Bull Wheel

Knows His Papers

"Well, Uncle Joe, I will make you a deed to the farm since it has been paid for."

"Boss, if it am all de same to you I had much rather you would give me a mortgage to de place."

"Uncle Joe, you don't seem to know the difference between a mortgage and a deed."

"Well, maybe not, but I owned a small farm once to which I had a deed and de Fust National Bank had a mortgage, and de bank got de farm."

No Great Annoyance

A doctor had an urgent phone call from a gentleman saying his small son had swallowed his fountain pen.

"All right! I'll come at once," replied the doctor. "What are you doing in the meantime?"

Whereto came the unexpected answer, "Using a pencil."

Well, Well!

"Good gracious, Junior, what would your mother say if she caught you smoking cigarettes?"

"She'd be furious; they're her cigarettes."

Normal

"Your wife has been delirious all day," said the nurse, "calling for you and crying for money."

"Delirious!" snorted friend husband. "She's normal!"

First Game of the Season

Boss—I notice there were 35,000 people present on the afternoon that your grandmother died.

Office Boy—I couldn't swear as to that, but grandma was always very popular.

Next Door

The luckless book peddlar knocked, and the door was opened by a grump looking woman.

"Have you Charles Dickens in your house?" he asked.

"No," snapped the woman.

"Or Robert Louis Stevenson, or Walter Scott?" he continued, hope dawning in his eyes.

"No, we ain't," said the woman. "And what's more, I don't take in lodgers. Try next door; they do."

Time Sprints On

Bill Brawnley, the strong man of the village, met another villager in the local saloon. During their conversation Bill called the other a liar.

The villager naturally resented this remark. "Look here, Brawnley," he said, "I'll give you just five minutes to take that back."

Bill smiled. "Is that so?" he replied, expanding his chest impressively. "And suppose I don't take it back in five minutes?"

"Then," said the other, after a slight pause, "I'll extend the time."

Too Much

"Wouldn't you like to be a motion picture star?"

"Yes," answered Miss Cayenne. "Only I'd probably marry my press agent. I couldn't possibly resist anyone who continually described me as so beautiful and so clever."

Ghosts

Two colored boys were having an argument about ghosts. One of them claimed to have seen a ghost the night before.

"What was dis here ghos' doin' when you las seen him?" asked the doubting one.

"Jes' fallin' behin,' mistah; fallin' behin' rapid."

Gentlemen Prefer Blondes

The defense attorney was cross-examining the witness, a beautiful blonde with lovely big blue eyes. The lawyer leaned forward.

"Where were you," he thundered, "on Monday night?"

The blonde smiled sweetly:

"Automobile riding."

"And where were you," bellowed the lawyer, "on Tuesday night?"

"Automobile riding," repeated the beautiful blonde.

"And what," he murmured, "are you doing tomorrow night?"

The prosecuting attorney leaped from his chair.

"Your Honor," he protested, "I object to that question."

"And why do you object?" inquired the judge.

The prosecutor drew himself up in righteous indignation.

"Because," he snapped, "I asked her first!"

Like Most of Them

WPA Worker: I dug this hole where I was told to and began to put the dirt back like I was supposed to. But all the dirt won't go back in. What'll I do?

Supervisor, after pondering: I have it, there's only one thing to do. You'll have to dig the hole deeper.

Before and After

Mountaineer: "Doc, I want you to look at my son-in-law. I shot at him yesterday and took a piece out of his ear."

Doctor: "Shame on you, shooting at your son-in-law!"

Mountaineer: "Huh! He wasn't my son-in-law when I shot at him."

Picked His Company

"All those who would like to go to Heaven," said the Sunday School teacher, "please raise their hands."

All did, except one.

"Why, Johnny," exclaimed the teacher, "wouldn't you like to go to Heaven?"

"Naw," said Johnny. "Not if that bunch is goin'."

Here's to Laughter

Here's to laughter, the sunshine of the soul, the happiness of the heart, the heaven of youth, the privilege of purity, the echo of innocence, the treasure of the humble, the wreath of the poor, the bead of the cup of pleasure. It dispels dejection, banishes blues and mangles melancholy, for it's the foe of woe, the destroyer of depression, the enemy of grief. It is what makes kings envy peasants, plutocrats envy the poor, the guilty envy the innocent. It's the sheen on the silver of smiles, the ripple on the water's delight, the glint of the gold of gladness. Without it humor would be dumb, wit would wither, dimples would disappear and smiles would shrivel. It's the glow of a clear conscience, the voice of a pure soul, the birth cry of mirth, the swan song of sadness.—Pure Oil News.

PUMPING UNITS

For Crude Oil or Refined Liquids

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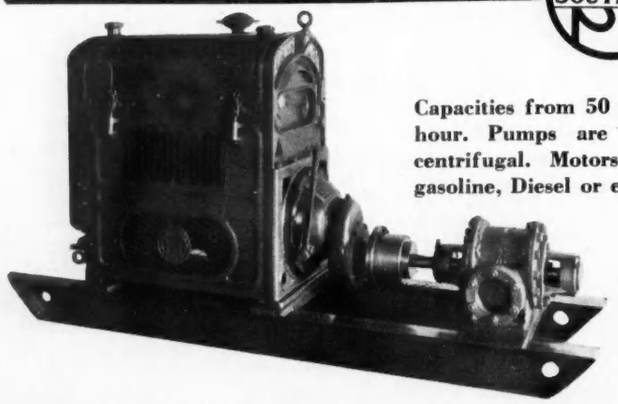

Capacities from 50 to 500 barrels per hour. Pumps are either rotary or centrifugal. Motors are either gas, gasoline, Diesel or electric.

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HOUSTON, DALLAS, AND KILGORE, TEXAS